

2. Goals, Objectives, Management Policies, and Guidelines

This chapter includes sections addressing two major topics: Refuge goals and objectives, and Refuge management policies and guidelines. Refuge goals and objectives and Refuge management policies and guidelines are features of the alternatives (described in detail in Chapter 3). Chapters 2 and 3 must be read together for a full view of the alternatives.

This chapter includes the following sections:

- Section 2.1 identifies Refuge goals and objectives that would be implemented if any of the action alternatives (B-F) is selected.
- Section 2.2 provides an overview of Refuge policies and guidelines.
- Section 2.3 describes land management categories on Alaska's national wildlife refuges. Note that the Moderate Management and Intensive Management categories are not used nor proposed for use on Arctic National Wildlife Refuge (Arctic Refuge, Refuge).
- Section 2.4 describes Arctic Refuge management policies and guidelines in detail.
- Section 2.5 is a summary table comparing allowed activities, uses, and facilities by management category.

2.1 Refuge Goals and Objectives

Arctic Refuge purposes, vision statement, and special values (see Chapter 1) provide the framework for developing goals and objectives for managing the Refuge. Goals are broad statements of desired future conditions. Objectives are concise statements of what the Refuge wants to accomplish.

Objectives identified for one goal are often applicable to other goals. To avoid unnecessary duplication, each objective is listed only under the goal that represents the clearest connection.

The full range of objectives presented here provides an overview of the management priorities currently being addressed or that shall be addressed during the life of the Comprehensive Conservation Plan (Plan, Revised Plan). The objectives span three broad periods, relative to when the Revised Plan is approved: ongoing and immediate priorities (years 1-3), short-term priorities (years 4-8), and long-term priorities (9 or more years).

2.1.1 Goal 1: Ecological processes continue to shape the Refuge, and to the greatest degree possible, these processes remain free of the intent to alter the natural order, including the dynamics of fish and wildlife populations and their relationships with natural habitats.

Ongoing and Immediate Priorities (Years 1-3)

Objective 1.1: Refuge Management—Management programs will continue to support, protect, and maintain the Refuge's unique role as a benchmark for exceptional biological integrity, environmental health, and wildness in the National Wildlife Refuge System.

Rationale: Ecological processes shape the environment and influence biological structure and function at genetic, species, and community levels. In the National Wildlife Refuge System,

biological integrity, environmental health, and wildness vary—from degraded and/or extensively altered by human impacts, to natural and intact. No landscape retains absolute biological integrity, environmental health, and wildness. However, Arctic Refuge is widely recognized as anchoring the natural end of the spectrum of ecological and environmental conditions in the Refuge System.

Strategy: When considering whether proposed activities support or detract from the Refuge’s biological integrity, environmental health, or wildness, Refuge managers must weigh all the factors identified by establishing purposes, laws, policy, and science. Wherever possible, we will avoid management actions that may diminish biological integrity, environmental health, or wildness, while focusing on preventing or minimizing human-caused impacts to resources and ecological processes that the Refuge can control or influence. We acknowledge that climate change and other external factors the Refuge cannot control may change resource conditions and the course of ecological and evolutionary processes. Thus, maintenance of some current conditions may be unattainable. In such cases, the Refuge will avoid interventions intended to maintain current conditions in favor of allowing species and communities to adapt and evolve.

Objective 1.2: Inventory and Monitoring of Wildlife and Habitats—Upon Plan adoption, Refuge biologists will begin revising the Ecological Inventory and Monitoring (I&M) Plan for Arctic Refuge. The I&M Plan will be consistent with regional U.S. Fish and Wildlife Service (Service) guidelines, and will be finalized following the Ecological Review (see Objective 1.4).

Rationale: Data on abundance, distribution, and population trends for the fish, wildlife, and plants of the Refuge provide baseline knowledge of Refuge resources and help guide adaptive management for conservation of natural diversity. An intensive program to inventory the biological resources of the Refuge and monitor their status and trends over time has been in place for many years. The Refuge is vast and biologically diverse, however, and gaps still exist in our knowledge of biological resources, water quality and quantity, air quality, and the ecological processes that affect them. Current efforts are guided in part by the Refuge’s draft Ecological I&M Plan, which was completed in 2000. That plan needs updating to reflect recent priorities and information needs and to bring it into compliance with the Service’s national and regional standards. The I&M Plan will also benefit from the Ecological Review, which is a peer review of the Refuge’s biological programs.

Strategy: In the I&M Plan, Refuge biologists will summarize available ecological data (including geospatial databases) and information on physical processes such as hydrological regimes and climate. The I&M Plan will include an ecosystems model for the Refuge that illustrates ecological relationships among plants, fish, wildlife, and their habitats. It will also identify data gaps, including geospatial data needs for change detection and resource monitoring, and will assist in prioritization of future I&M needs. I&M sampling designs and field protocols will be peer reviewed, and data management procedures will be addressed. The I&M Plan will be consistent with guidance provided by the National Wildlife Refuges Inventory and Monitoring Program. The Refuge will solicit input from Service experts and partners during revision of the I&M Plan, including the Alaska Department of Fish and Game (ADFG), U.S. Geological Survey (USGS), academic institutions, and science-based non-governmental organizations. Much of this input will be provided by those invited to serve on the Refuge’s Ecological Review panel (see Objective 1.4). The I&M Plan will be implemented immediately upon completion. We expect the I&M Plan will be completed within four years.

Objective 1.3: Applied Research—Coincident with revision of the I&M Plan, Refuge biologists will prepare a Research Plan that identifies and prioritizes needs for applied research, and identifies potential cooperators.

Rationale: Biological inventories will document the species and habitats present on the Refuge, and monitoring will allow us to track the status and trends of those species and habitats over time. To further develop effective conservation measures for the Refuge, research is needed to understand why species occur where they do and what factors affect population sizes and movements, as well as to evaluate potential threats to natural diversity on the Refuge. Much of the biological research that occurs on the Refuge relies on partnerships between the Service and ADFG, USGS, other U.S. Federal and Canadian agencies, academic institutions, and science-based non-governmental organizations. We will promote research that contributes to conservation of Refuge species and their habitats.

Strategy: The Research Plan will be prepared concurrently with the I&M Plan (Objective 1.2) and will be incorporated as an appendix to the I&M Plan. It will receive peer review by a multidisciplinary team during the Refuge's Ecological Review to ensure relevance and project prioritization. The Research Plan will be reviewed annually in conjunction with work planning and budgeting, and it will be revised as needed based on staff review of new information obtained through inventory, monitoring, and research, and on emerging management needs.

Objective 1.4: Ecological Review—Within three years of Plan approval, Refuge staff will conduct an Ecological Review of the Refuge's biological program and draft I&M and Research plans.

Rationale: The Ecological Review will be an evaluation of our biological program by a panel of ecologists, fish and wildlife biologists, physical scientists, and land managers. Members of the panel will represent State and Federal agencies, academia, non-governmental organizations, and independent scientists. The review will help ensure that our inventory, monitoring, and research efforts are appropriate, effective, and efficient. The review will serve as the basis for revision and refinement of the draft I&M and Research plans.

Strategy: We will convene a scientific review panel that includes Service and other specialists with expertise in arctic and subarctic ecosystems of North America. The panel's recommendations will be considered as we subsequently revise our draft I&M and Research plans, and will be implemented in future inventory, monitoring, and research efforts.

Objective 1.5: Fire Management—Managers will maintain a fire management program on Arctic Refuge that allows wildland fires to continue their ecological role and that protects human life and, where appropriate, property and cultural resources.

Rationale: The primary goal of the Refuge's fire management program is to maintain the natural wildland fire regime to the greatest degree possible. This goal recognizes the important and ongoing role of fire as a natural process in the creation and maintenance of the ecological diversity and natural dynamics central to the purposes of the Refuge. However, all fire management decisions must first consider the protection of human life and, where appropriate, the protection of property and cultural resources. Fire suppression and preventative fuels reduction may sometimes be necessary to achieve this balance.

Drier conditions and longer summers tied to global climate change are expected to result in increased wildland fire activity on the Refuge in coming years. Despite these potential changes

to the fire regime, Refuge managers anticipate that it will continue to be important to allow naturally occurring fires to shape Refuge ecosystems.

Strategy: An approved Fire Management Plan (FMP) is a prerequisite to conducting wildland fire management activities. The Refuge FMP provides a framework for making fire management decisions, and outlines a unified strategy for managing wildland fire on all Refuge lands. The FMP is a dynamic document and will be reviewed each year using the Service's nationally established process (FWS Fire Management Handbook 2012). Refuge managers will conduct a full revision of the FMP whenever major changes in management are proposed or in concert with revisions to the Refuge Comprehensive Conservation Plan. This review and revision process ensures that the objectives and strategies for fire management in the FMP remain consistent with general management direction in the Revised Plan.

Objective 1.6: Fish and Wildlife Management Proposals—Refuge staff will participate in State of Alaska Boards of Fisheries and Game and Federal Subsistence Board processes to ensure the Refuge's purposes, goals, and objectives are considered in evaluation of proposals that could affect resources inside the boundaries of the Refuge.

Rationale: The Alaska Board of Fisheries and Game conserve and develop fish and wildlife resources on Federal public lands, unless State regulations are incompatible with the Refuge's purposes, goals, objectives, and management policies and guidelines or are preempted by Federal law. The State of Alaska's Board of Fisheries is responsible for conservation and development of the State's commercial, sport, subsistence, and personal-use fisheries. The Board of Game is responsible for conservation and development of the State's wildlife resources. The Federal Subsistence Board is the decision making body that oversees the Federal Subsistence Management Program, which is a multi-agency effort to provide the opportunity for a subsistence way of life by rural Alaskans on Federal public lands and waters while maintaining healthy populations of fish and wildlife. Various advisory committees or councils advise these boards, and they meet periodically to deliberate proposals that affect management of fish and wildlife. Regulations enacted by these boards may affect the taking of fish and wildlife on Arctic Refuge.

Strategy: Refuge staff will monitor proposals and evaluate potential effects on Refuge resources in relation to Refuge purposes, goals, and objectives and applicable policies and laws governing management of the Refuge. The Refuge will provide comments as appropriate to the decision making bodies on proposed actions.

Objective 1.7: Land Protection Plan—Within three years of Plan approval, complete an Arctic Refuge Land Protection Plan.

Rationale: Service policy requires the development of a Land Protection Plan (LPP) to identify and prioritize areas of high-quality habitat on private lands inside the boundaries of the Refuge for acquisition by the Service. The LPP will discuss a full range of alternative methods and means for land and resource conservation, including fee simple purchase, conservation easements, and cooperative management agreements to achieve Refuge purposes, goals, and objectives. The Service only acquires land from willing sellers and only when other methods and means are not appropriate, available or effective. Refuge managers must also consider management priorities and availability of funds when approached by private landowners with land conservation proposals.

Strategy: In evaluating the most appropriate method to achieve the conservation goals, Refuge managers will consider effects of proposed land acquisitions on local residents. The United States has a unique legal and political relationship with Alaska Native tribal governments and Native corporations to provide regular and meaningful involvement in the decision making process regarding issues effecting cultural and subsistence resources, subsistence and traditional uses, or other activities that may have tribal or Native corporation implications. In consideration of public comments and the sensitivities of land acquisitions and exchanges in the Refuge, the time frame for completing the LPP will be within 1-3 years. Until the Refuge starts the LPP, the Service will continue to offer to purchase inholdings from willing sellers when funding is available.

Short-term Priorities (Years 4-8)

Objective 1.8: Status of Rare Species—Within five years of Plan approval, efforts to identify and determine the status of rare species will be initiated, with special emphasis on those that are threatened, endangered, declining, or otherwise at risk.

Rationale: Detection of rare species is critical to characterizing natural diversity and levels of variation, but it is often difficult, expensive, and time consuming. Special emphasis is necessary to achieve adequate inventory and monitoring efforts for such species.

Strategy: We will consult with multiple sources to identify species for this objective, including federally designated threatened and endangered species lists, the State of Alaska Wildlife Action Plan, U.S. Fish and Wildlife Service Birds of Conservation Concern, Arctic and Northwestern Interior Forest Landscape Conservation Cooperatives (LCCs), and the National Wildlife Refuge System I&M Program.



Long-term Priorities (9+ years)

Objective 1.9: Long-term Ecological Monitoring—Within 10 years of Plan approval and following completion of the I&M Plan and acquisition of baseline inventories, Refuge biologists will implement necessary changes to the Refuge’s Long-term Ecological Monitoring Program to ensure relevancy and sustainability of long-term monitoring efforts.

Rationale: Long-term ecological monitoring data is essential for detecting changes in Refuge resources and ecological systems over time, and will support development of conservation strategies. The Refuge implemented a Long-term Ecological Monitoring Program in the mid-1990s. Protocols and results from the first 20 years of that program will be evaluated as part of the Refuge’s Ecological Review and I&M Plan revision.

Strategy: We will revise the Refuge’s Long-term Ecological Monitoring Program based on recommendations from the Ecological Review; subsequent peer review of proposed projects; and results of ongoing inventory, monitoring, and research projects. We will also consider emerging issues, Refuge priorities, and budgetary constraints. Any changes in monitoring targets or protocols will be specified in the revised I&M Plan. Long-term ecological monitoring will be conducted in partnership with others, including the National Wildlife Refuge System I&M Program, LCCs, the Refuge System Branch of Air Quality, National Park Service (NPS) Vital Signs Monitoring Program, USGS Alaska Climate Science Center, and ADFG.

2.1.2 *Goal 2: The Refuge preserves its wilderness values and characteristics, maintains its natural state in unaltered condition, and designated Wilderness is managed consistent with the intent of the Wilderness Act and ANILCA.*

[NOTE: Objectives 2.1 through 2.5 apply only to areas of the Refuge in designated Wilderness. Objectives 2.6 and 2.7 apply to lands in designated Wilderness and those under Minimal Management.]

Immediate Priorities (Years 1-3 and Ongoing)

Objective 2.1: Integrated Wilderness Management—Designated Wilderness will be managed comprehensively as a component of all programs that affect the designated area’s physical, biological, and experiential values.

Rationale: Wilderness, like the ecosystems it encompasses, is a composite resource with interrelated parts. Our mandate to protect Wilderness character is integrally dependent upon maintaining the designated area’s biological and physical components in their natural and untrammelled condition, and in protecting experiential conditions that may depend upon wilderness characteristics. Thus, analysis of all programs and projects proposed for designated Wilderness (scientific, public use, law enforcement, information and outreach, aviation etc.) will include consideration of their potential to enhance or detract from the area’s Wilderness character.

Strategy: Refuge managers will develop a process/checklist to ensure the staff adequately considers potential effects of all programs and projects on Wilderness character. This includes ensuring that required Minimum Requirement Analyses (MRAs) are completed by qualified staff members and that minimum impact practices, such as those promoted by the Leave No Trace Center for Outdoor Ethics, are incorporated into field operating procedures.

Objective 2.2: Minimum Requirement Analysis—A Minimum Requirement Analysis (MRA) will be completed for all Refuge management activities in designated Wilderness.

Rationale: MRAs help Arctic Refuge maintain the character and unique values of its designated Wilderness. Requests for administrative and resource management activities, including scientific research, are analyzed through a process called an MRA. Conducting an MRA is the best way to determine what the impacts of a proposed project might be on Wilderness character and helps managers decide and document both if and how they should conduct management actions in designated Wilderness (610 FW 1 and 2).

Strategy: Refuge managers will conduct MRAs for all proposed Refuge management activities (i.e., administrative) in designated Wilderness on Alaska Refuges. All MRAs will be reviewed once every five years or when major changes are proposed for activities.

Objective 2.3: Wilderness Training—All Refuge staff working in designated Wilderness will be required to complete Wilderness stewardship, MRA, and minimum impact methods training within two years of assuming their work duties in Wilderness.

Rationale: Designated Wilderness is a unique resource with numerous laws, regulations and policies, and minimum impact management techniques that protect the physical, biological, symbolic, and experiential components of Wilderness. Specialized knowledge is needed by Refuge staff working in Wilderness to understand these complex legal requirements, the philosophical underpinnings of designated Wilderness, and techniques for its management.

Strategy: All Refuge staff working in designated Wilderness will be required to complete Wilderness stewardship, MRA, and minimum impact methods training (such as Leave No Trace). At least one Refuge staff member will be trained in minimum impact techniques, methods, and/or guidelines (such as Leave No Trace principals) at the Master Educator Level. The Refuge will provide materials on minimum impact techniques to all permitted guides.

Objective 2.4: Wilderness Stewardship Plan—Immediately upon approval of the Revised Plan, Refuge managers will initiate a multi-year planning process to develop a Wilderness Stewardship Plan for the Refuge's designated Wilderness.

Rationale: Wilderness Stewardship planning helps ensure appropriate management of designated Wilderness, with its various qualities and opportunities, and is required by Service policy. Development of a Wilderness Stewardship Plan (WSP) will also provide the Service and the public the opportunity to consider and plan for a variety of designated Wilderness experiences.

Strategy: The WSP will contain indicators, standards, conditions, or thresholds that define adverse impacts on Wilderness character and values that will trigger management actions to reduce or prevent those impacts. It will describe ongoing and needed monitoring and research, appropriate and compatible uses and commercial services. It will also describe MRAs for Refuge management activities. The Refuge will coordinate the Wilderness Stewardship and Visitor Use Management planning processes (Objective 5.4) through concurrent scoping, preplanning, data collecting, public involvement, and planning decisions.

Objective 2.5: Administrative Facility at Lake Peters—Within two years of Plan approval, Refuge managers will complete required analyses to potentially remove one or more buildings at Lake Peters, and any identified building(s) will be removed within four years of Plan approval.

Rationale: The G. William Holmes Research Station, located on the east side of Lake Peters, was originally established in the late 1950s by the Department of the Navy as a substation of the Naval Arctic Research Laboratory in Barrow, Alaska. In 1999, the footprint from the original facility was altered and reduced. The facility now includes a bunkhouse (448 square feet), a cookhouse (360 square feet) with a full kitchen, a warehouse (320 square feet) to store tools and equipment, a 500-gallon fuel spill containment structure, and a newly renovated outhouse. The remote site is in both designated Wilderness and a Public Use Natural Area (PUNA). It is costly to access and maintain. The facility is too large for current and projected needs, and some of the public asked us to remove the facility during scoping for the Plan.

Strategy: The appropriate level of environmental analysis will be completed, including any required consultation, such as with the State Historic Preservation Office. The Refuge manager will develop a detailed project proposal that identifies the specific actions to be taken, and if any structures are identified for removal, how and when the work will be accomplished; an MRA would also be completed on the proposed work. If approved, the project will be implemented and all work completed within four years of Plan approval.



Objective 2.6: Monitoring Wilderness Characteristics— Refuge staff will monitor, through protocols developed in step-down plans, the characteristics commonly associated with designated Wilderness and other wildlands. These include Minimal Management areas and other areas that are essential components of the Refuge’s special values (Chapter 1, Section 1.5).

Rationale: Relevant, reliable, and cost-effective indicators of change in characteristics that are essential components of the Refuge’s special values are needed to determine if those qualities are stable, improving, or degrading over time. These wilderness characteristics include biophysical elements (e.g., undeveloped conditions, natural appearances, free-functioning ecosystems, native flora and fauna), and conditions conducive to experiential opportunities (e.g., solitude, natural quiet, adventure, primitive and unconfined recreation).

Strategy: Three step-down planning efforts will be initiated soon after approval of the Plan: an Ecological I&M Plan (Objective 1.2), a Visitor Use Management Plan (Objective 5.4), and a WSP (Objective 2.4). Collectively, and in an integrated manner, the monitoring components of these plans will enable trends in wilderness characteristics to be described, quantified, and addressed. Monitoring of these characteristics will be conducted both on lands in Minimal Management and those in designated Wilderness, although the WSP may also specify monitoring of additional qualities related to Wilderness character in designated Wilderness as outlined in the Interagency Keeping It Wild strategies (U.S. Forest Service 2008).

Objective 2.7: Restoration of Impaired Sites— Refuge staff will expand efforts to restore wilderness characteristics to sites in Wilderness and Minimal Management lands that have been impaired or degraded.

Rationale: Activities related to public use, military operations, and other agencies and institutions have resulted in localized impairment of wilderness characteristics and visitor experiences. Many of these impairments predate the original Range’s establishment in 1960 and its expansion and designation as Arctic Refuge in 1980, degrade wilderness characteristics, and conflict with some Refuge goals.

Strategy: Refuge staff will work with other agencies, volunteers, private land and allotment owners, and permit holders to identify, prioritize, and restore affected sites. Actions include removing trash, barrels and contaminants, rehabilitating extensively impaired camp sites, cleaning up debris and contaminants around abandoned cabin sites and hunting guide camps, and removing downed civilian aircraft, military aircraft and debris, and spent rockets and debris left by the National Aeronautics and Space Administration (NASA). The Refuge will continue to seek funding and military assistance for further cleanup and contaminant removal at Formerly Used Defense Sites, and for removal of heavy equipment left along the old bulldozer trail in the southeastern portion of the Refuge. The Refuge is committed to initiating rehabilitation of at least one site per year. The Service will complete required environmental analyses for proposed activities and will consult or coordinate as appropriate with other agencies, such as the State Historic Preservation Office. To complement recovery of impaired sites and prevent further impacts, the Refuge will expand law enforcement and conduct outreach related to Refuge regulations (Objectives 5.7 and 9.2) and minimum impact practices (Objective 9.2). For more on restoration, see Objective 5.4.

2.1.3 *Goal 3: The ecological functions and natural flow regimes of the Refuge’s aquatic ecosystems, including headwater streams, rivers, springs, wetlands, lakes, and lagoons, are documented and protected, and designated Wild Rivers and the Marine Protected Area are managed in a manner consistent with their special designations.*

Ongoing and Immediate Priorities (Years 1-3)

Objective 3.1: Marine Protected Area—Marine waters of the Refuge within the National Marine Protected Areas (MPA) Network will be collaboratively studied and managed to protect the area’s natural heritage values and enhance public recognition of Arctic Refuge MPA through environmental education and outreach.

Rationale: In 2009, all marine waters in the Refuge were designated an MPA as part of the National MPA System to conserve the area’s natural heritage. Arctic Refuge MPA may be impacted by loss of sea ice, changes in freshwater input, increased rates of coastal erosion or accretion, increased shipping activity, offshore development (e.g., oil spills), and introduction of invasive species associated with marine shipping. We know relatively little about nearshore marine ecosystems of the Refuge and their relationships with terrestrial ecosystems. Designation of the marine waters of the Refuge as an MPA is intended to: (1) facilitate collaborative work with other MPAs regionally and nationally on issues of common conservation concern; (2) foster greater public and international recognition of the marine resources of the Refuge; and (3) prioritize acquisition of resources to meet key monitoring and research needs.

Strategy: As a basis for managing the MPA, the Refuge needs a better understanding of natural variability in nearshore ecosystems and the relationships between marine and terrestrial systems. Refuge staff will conduct inventory and monitoring activities that support management of the MPA to protect and enhance the Area’s natural heritage. We will maintain and enhance collaborative efforts to improve understanding of lagoon ecosystems, monitor coastal erosion and accretion, quantify input of freshwater and associated constituents to coastal ecosystems, and evaluate potential impacts of climate change on lagoon ecosystems. Existing and future efforts will include working with partners in the Arctic Landscape Conservation Cooperative. We will continue working with others to ensure adequate spill response capabilities; develop proactive measures for limiting introduction of invasive species; investigate relationships between terrestrial, coastal, and marine environments; and develop environmental education and outreach programs that focus on the Refuge’s marine ecosystem.

Objective 3.2: Water Rights—Refuge managers will establish legal protection for water quality and quantity to support Refuge purposes.

Rationale: Water of sufficient quality and in sufficient quantity is a necessary component of fish and wildlife habitat and population management. It is also specifically identified in ANILCA as a primary purpose of the Refuge, and it is a core component of the Refuge System’s mission “to administer a network of lands and waters” for future generations.

Though the Refuge has Federal reserved water rights to meet its purposes, it is Service policy to work within the State’s water rights system when practicable. During 1994-1998 the Service identified water bodies on Arctic Refuge most likely to experience competing water uses and applied to the Alaska Department of Natural Resources (ADNR) for instream flow reservations for fish and wildlife purposes. As of this writing, 152 instream

flow reservations have been filed with ADNRR, but no reservations have been adjudicated. Though each reservation has a priority date (i.e., the date of application) and identifies an amount or elevation of water to be reserved, the amount of water reserved is not quantified until adjudicated.

Strategy: The strategy of the Refuge System in Alaska is to work within State statutes to obtain State-based instream flow reservations for fish and wildlife purposes, as practicable, and to explore other options, including Federal reserved water rights, when necessary.

Objective 3.3: Water Resource Inventory and Assessment—Refuge staff will work with the Service’s regional Water Resource Branch to complete a water resource inventory and assessment within one year of Plan approval.

Rationale: A water resource inventory and assessment provides an inventory and assessment of existing water quantity and quality data and information on water rights, management, and potential threats, which is essential to identify data gaps and prioritize data collection needs.

Strategy: The water resource inventory and assessment is a coordinated effort conducted by regional Refuges Inventory and Monitoring staff and Refuge staff. The initial stages of the assessment will provide an inventory of existing information about water resources in the Refuge, including water sources, water quality and quantity, water rights, and threats to water resources. Information from the water resource inventory and assessment will contribute to Comprehensive River Management Plan (CRMP) baseline resource assessments (Objective 3.5). The information will also be used to identify data gaps and potential threats, make recommendations for addressing potential threats, prioritize inventory and monitoring efforts, and strategize to reduce potential impacts to water resources.

Short-term Priorities (Years 4-8)

Objective 3.4: Water Quality and Quantity—Refuge staff will monitor water quality and quantity at appropriate intervals at previously sampled sites and at additional locations to document baseline conditions and changes over time.

Rationale: Water samples have been collected at selected lakes and at Formerly Used Defense Sites on the Refuge’s North Slope for water quality analyses, and results are being tabulated and reported. Further, there is an ongoing program to monitor river gages on the Refuge to provide flow estimates to support water-rights applications (Objective 3.2), as well as biophysical monitoring and research. These data will contribute to CRMP baseline resource assessments (Objective 3.5). Local tribes have also expressed concerns about water quality and quantity in relation to transportation and subsistence resources such as fish.

The comprehensive data set collected in 1988 and 1989 serves as baseline data for water quality and contaminants levels in key ecological media on the Refuge’s coastal plain. Those data showed water quality and contaminants levels in the expected range for relatively pristine, undeveloped Arctic areas. The exceptions occurred around Kaktovik; for example, fuel-based petroleum hydrocarbons were detected in the sediments of Kaktovik Lagoon. In the 20 years since these baseline data were collected, environmental changes have occurred in the Arctic, including changes in contaminant transport and mobilization due to climate change. The effects of these changes on the quality and contaminants levels of coastal plain lakes, ponds, and wetlands are unknown.

Strategy: Within five years, we will take samples at previously sampled sites to document changes over time. Water quality samples will also be taken at additional ecological monitoring sites, at rafting put-in and/or take-out locations, and at other popular public use areas to monitor potential human impacts and establish baseline values. We will continue to pursue funding and partnerships to maintain and enhance river-gaging efforts as needed.

We will seek funding through partnerships to repeat collection of water quality and contaminants data on the Refuge's coastal plain. The comparison between the 1990 results and these newly acquired data will provide insight into water quality and contaminants changes in undeveloped Arctic ecosystems experiencing climate change. We will seek publication of data and analyses in peer-reviewed scientific publications and will transmit results through outreach to researchers, other agencies, and the public.

Objective 3.5: Comprehensive River Management Plans for designated Wild Rivers—Refuge staff will initiate a baseline resource assessment and Comprehensive River Management Plans (CRMP) for each currently designated wild river within five years of Plan completion and, for any newly designated rivers, within three years of their designation.

Rationale: The Wild and Scenic Rivers Act requires land managers to complete a CRMP within three years of a river being designated. Three rivers on Arctic Refuge were designated in 1980 with the passage of ANILCA, but their CRMPs have not been developed. The assessment and plan for each wild river will incorporate all elements required by the Wild and Scenic Rivers Act, including descriptors of desired conditions and user capacities. The CRMPs will ensure that management of the Refuge's wild rivers compliments and is consistent with management of other areas of the Refuge. Periodic monitoring of public use impacts (e.g., campsite condition, human waste accumulation, visitor experience, etc.) will provide valuable feedback as to whether management is successfully maintaining each river's outstandingly remarkable values (ORVs).



Strategy: Baseline resource assessments will document current conditions related to the river's free-flowing condition, water quality, and ORVs. Data collection will follow guidance of the Interagency Wild and Scenic Rivers Coordinating Council (IWSRCC) (2010). The river management plans will identify measurable indicators, thresholds, and intervals for long-term monitoring and a suite of management actions.

The Refuge's wild rivers serve as suitable locations for ongoing inventory and monitoring of water quality and quantity, one of the Refuge's ANILCA purposes, and monitoring efforts identified in the CRMPs will be coordinated with the I&M program and other efforts (see also Objectives 1.2, 2.4, 2.6, 3.3, 3.4, and 5.4).

The Service will fund and staff the baseline assessment and CRMP for each of the three designated wild rivers and train employees on the Wild and Scenic Rivers Act and wild and scenic rivers management. An interdisciplinary team will conduct resource assessments and gather data during the preplanning field season. Staff could come from the Refuge, the regional office, other Service stations, or detailed from universities or other resource agencies with expertise. The team may also work closely with the Service's regional and national wild and scenic rivers coordinators to help inform and educate agency employees.

2.1.4 *Goal 4: The Refuge, in consultation with appropriate parties, addresses concerns about proposed actions that may substantially or directly affect subsistence or cultural resources, rural subsistence or cultural uses, or the rights of tribes.*

Ongoing and Immediate Priorities (Years 1-3)

Objective 4.1: Formal Consultation—Refuge managers will consult with Alaska Native tribes and Native corporations in government-to-government fashion at least annually on all proposed actions and Refuge uses that may affect the tribes or corporations.

Rationale: The United States has a unique legal and political relationship with American Indian and Alaska Native tribal governments as set forth in the Constitution of the United States, treaties, statutes, court decisions, Executive orders, and policies. In recognition of this relationship, the President issued Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments) on November 6, 2000, which provides guidelines to all Federal agencies for how to establish regular and meaningful consultations with tribal officials. In January 2001, the Department of the Interior (DOI) established the Alaska Policy on Government-to-Government relations. A Presidential Memorandum was signed in 2009, and the DOI Policy on Consultation with Indian Tribes was published in 2011. In August 2012, the DOI Policy on Consultation with Indian Tribes was supplemented with the requirement to consult with Alaska Native Claims Settlement Act (ANCSA) corporations on actions or activities that may have a substantial direct effect on Alaska Native corporations, including corporation lands, waters, or resources. These policies reaffirm the Federal government's commitment to operate within a government-to-government relationship with Indian and Alaska Native peoples.

Consultation will occur whenever a Federal action with tribal or Native corporation implications is proposed, including the decision making process for that action. Examples of such actions are the preparation of a management plan for an area near tribal lands or Refuge-proposed changes in management of subsistence resources. In Alaska, formal consultation with tribes and Native corporations is necessary for successful Refuge management, and the Refuge will continue to

communicate about ongoing and future research, monitoring, and management activities. The Refuge can strengthen cultural and community ties and its conservation mission by making good-faith efforts to understand Iñupiat and Gwich'in perspectives and official positions in a mutual, transparent, and formal manner.

Strategy: Pursuant to these directives, Refuge managers will engage in formal consultation with tribal officials and Native corporations for all actions and decision making processes that could have implications for tribes or Native corporations. When considering such an action, the Refuge shall notify the appropriate Alaska Native tribes and/or regional or village corporations of the opportunity to consult at least 30 days prior to scheduling a meeting. In this notice, the Refuge will provide a description of the topic to be discussed in sufficient detail to allow tribal leaders and Native corporation executives to fully engage in the consultation. The Refuge will give tribal leaders and Native corporation executives the opportunity to provide feedback prior to consultation, including requests for technical assistance or clarification on the consultation process. All aspects and stages of the consultation process shall be documented.

Objective 4.2: Subsistence Opportunities—Refuge managers will provide opportunities for continued subsistence uses essential to the physical, economic, traditional, cultural, and social existence of federally qualified rural residents. We do this through working with local communities, advisory groups, and tribes and by participating in Federal and State regulatory processes (ANILCA Section 801(1)).

Rationale: The Refuge is mandated by ANILCA Section 303 (2)(B) to provide for subsistence uses by federally qualified subsistence users. ANILCA states in Section 802(2) that "nonwasteful subsistence uses of fish and wildlife and other renewable resources shall be the priority consumptive uses of all such resources on the public lands of Alaska when it is necessary to restrict taking in order to assure the continued viability of a fish or wildlife population or the continuation of subsistence uses of such population." ANILCA Section 810 also stipulates that when the Refuge contemplates "whether to withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of public lands," it must evaluate the effects of such uses on subsistence uses and needs. If the Refuge determines that a significant restriction is likely to occur, it must follow the Section 810 notice and hearing requirements. The Refuge may proceed with an action that would significantly restrict subsistence uses only if it first determines a significant restriction is necessary, the action will involve the minimal amount of public lands for the proposed action, and reasonable steps will be taken to minimize adverse impacts on subsistence uses and resources.

Strategy: Regular meetings in rural communities are the most effective way to explain Federal and State regulations and policies regarding conservation of fish and wildlife populations and discuss issues of local concern to subsistence users. It is essential that affected parties communicate and work cooperatively towards achieving common subsistence use and management goals. Refuge managers will continue to conduct annual meetings in Arctic Village, Fort Yukon, Kaktovik, and Venetie to share information and maintain an active dialogue with local residents about subsistence management. Refuge staff will continue to work cooperatively with tribal and village councils to issue Federal registration and drawing hunt permits as prescribed in the Federal Subsistence Harvest Regulations for Refuge lands, including current hunt permits for moose, muskoxen, and sheep. The Refuge will also continue to conduct 810 evaluations when needed.

Objective 4.3: Refuge Information Technician (RIT) Program—Refuge managers will continue to enhance regular communications in Arctic Village, Kaktovik, and other rural communities through the RIT Program and will seek funding to place an RIT in Venetie and Fort Yukon within five years.

Rationale: Locally hired RITs are vital liaisons between Refuge staff and members of rural communities lacking ready access to staff in Fairbanks. Potential roles for RITs include exchanging information with local residents, answering questions from visitors, assisting with monitoring and research, providing logistics for studies, advising staff on community issues and concerns, and providing translation services when necessary. Many local residents are more comfortable interacting with a familiar person who better understands the local language, culture, and community. Currently the Refuge has RITs in Kaktovik and Arctic Village.

Venetie tribal lands are surrounded by Refuge lands—Arctic Refuge to the north, east and west, and Yukon Flats National Wildlife Refuge to the south. Arctic Village and Venetie Village are located in the Venetie Tribal Lands and village residents share membership in the Native Village of Venetie Tribal Government. There are strong family ties and shared traditional use areas between the villages of Venetie, Fort Yukon, and Arctic Village. The Refuge must maintain close contact with these communities, and RITs based in Venetie and Fort Yukon could improve communication and strengthen cooperation in those villages.

Strategy: Facilitated by the RIT program, the Refuge will communicate, consult, and maintain relationships with various groups in these villages to ensure continued opportunities for subsistence uses on Refuge lands and waters. Arctic Refuge will work with the Yukon Flats National Wildlife Refuge and will consult and partner with the villages of Venetie and Fort Yukon regarding the placement and recruitment of RITs in these communities and these positions will be shared with Yukon Flats National Wildlife Refuge.

Objective 4.4: Village Harvest Monitoring Programs—Within two years of Plan approval, Refuge staff will work with partners to expand and implement annual community-based subsistence monitoring programs for harvest of fish and wildlife by residents of Arctic Village, Venetie, Kaktovik, and Fort Yukon.

Rationale: Compliance with the current Federal and State individual harvest reporting system is low and unreliable for most rural villages. The majority of the data on subsistence harvest in the Refuge was collected in the 1980s and may not accurately portray current patterns in subsistence use, demographics, harvest amounts, hunting seasons, locations, or community needs. The Refuge currently needs up-to-date subsistence harvest data for fish and wildlife species to address regulatory proposals to the Federal Subsistence Board and the State Boards of Fish and Game. A community-supported harvest monitoring program with implementation protocols based on timely and accurate harvest information is needed to ensure long-term conservation of subsistence species of fish and wildlife and subsistence uses for federally qualified subsistence users.

Strategy: Effective community involvement and close relationships between the Refuge and local governments and communities are critical in conducting accurate subsistence harvest monitoring programs in Arctic Village, Venetie, and Kaktovik. The most effective way for the Refuge to implement this objective is through coordination and partnerships with local communities, tribal governments, village corporations, the Council of Athabascan Tribal Governments, Tanana Chiefs Conference, North Slope Borough, Alaska Migratory Bird Co-

management Council, ADFG, Arctic Borderlands Ecological Knowledge Cooperative, and the Service's Office of Subsistence Management and Division of Marine Mammals Management. Village subsistence harvest surveys should be implemented by respected and trusted local residents. Village residents must be closely involved with the collection and sharing of subsistence harvest data for fish and wildlife species. These surveys should be conducted at least once a year in each village.

Objective 4.5: Manage Subsistence Use Data—Refuge staff will establish a managed network of compiled historical and contemporary subsistence use data for use in making subsistence-related decisions on Refuge lands and waters.

Rationale: Comprehensive and ethnographic-based studies of subsistence uses on Refuge lands are relatively dated and small in number. Subsistence use information can include a substantially large body of cultural, social, and economic information. A small list includes: types of fish, wildlife, berries, and plant materials used; cultural or economic significance; location and intensity of subsistence activities; demographics; harvest amounts and community needs; hunting seasons and practices; barter and trading practices; and community or household needs. A comprehensive review of existing information is needed to identify gaps in the data and to identify priorities for future subsistence research and monitoring. This information is needed to ensure traditional subsistence use and knowledge is thoroughly and accurately considered in Federal and State proposals for subsistence regulations, as well as Refuge management actions.

Strategy: Within one year of Plan approval, the Refuge will work with partners to compile existing subsistence use data, both contemporary and historical, and develop a comprehensive and functional repository of this information. Original data will be kept in a manner and location to be determined by the affected tribal governments. Multiple sources of published and unpublished subsistence use and harvest data reside with various agencies, organizations, tribal governments, and village councils. We will compile sources of scientific data, traditional knowledge, and ethnographic information through formal partnerships with local tribal and village councils, Native corporations, the Council of Athabascan Tribal Governments, Tanana Chiefs Conference, North Slope Borough, International Porcupine Caribou Board, ADFG, the Alaska Migratory Bird Co-management Council, and the Service's Office of Subsistence Management and Division of Marine Mammals Management.

Short-term Priorities (Years 4-8)

Objective 4.6: Historical Access—Within six years of Plan approval, Refuge staff will begin a historical access study, in cooperation with local tribal governments, Native communities, elders, and the State of Alaska, to understand the historical access patterns and inform management decisions on access.

Rationale: ANILCA provides that “use for subsistence purposes of snowmachines, motor boats, and other means of surface transportation traditionally employed” (Section 811(b)) and “use of snowmachines... motorboats, airplanes, and non-motorized surface transportation methods for traditional activities” (Section 1110(a)) shall be permitted subject to reasonable regulation. A study of historical access to the lands and waters that now comprise Arctic Refuge will help determine where and what activities have occurred on the Refuge. An understanding of historical access will assist the Refuge in monitoring and managing current and future access.

Strategy: In preparation for the historical access study, Refuge managers will formally consult with local tribal governments and Native corporations, and seek cooperation with Native organizations and communities to interview elders and other long-term residents to find out what people did on lands that became Refuge and what methods of access they used. Time is of essence for interviewing and recording elders who have a close and long connection to the land. The historical access study will include a thorough review of Refuge annual narratives reports, the 1988 Plan, and other relevant documents and publications of a historical nature.

2.1.5 *Goal 5: The Refuge provides a range of opportunities for wildlife-dependent and wilderness-associated recreational activities that emphasize adventure, independence, self-reliance, exploration, and solitude or primitive and unconfined recreation while protecting the Refuge's natural conditions and special values.*

Ongoing and Immediate Priorities (Years 1-3)

Objective 5.1: Access for a Range of Visitor Opportunities—Refuge managers will continue to provide access for a range of compatible recreational activities, including hunting, fishing, wildlife observation, photography, camping, backpacking, river floating, and mountaineering.

Rationale: One purpose of the original Arctic Range was to “preserve unique ... recreation values,” and through ANILCA Section 101(b), Congress declared its intent “to preserve wilderness resource values and related recreational opportunities....” Arctic Refuge provides a superlative setting for a variety of compatible recreational activities, and, consistent with maintaining the wilderness resource values upon which their special character depends, the Service will continue to provide opportunities for visitor access.

Strategy: Public access to the Refuge will continue to be guided by the access provisions of ANILCA (Section 1110) and other applicable laws and policies. Means of access, including aircraft, motorboats, snowmobiles, and non-motorized surface transportation, are subject to reasonable regulation to protect the Refuge's natural and other values. ANILCA did not differentiate between users, but rather provided for the use. Uses will not be prohibited in any area of the Refuge unless, after a public process involving notice and hearing in the vicinity of the Refuge, the use is determined to be detrimental to the area's resource values. To help facilitate public access, the Refuge will continue working with permitted transportation and guide service providers to ensure that, to the degree practical, needed or desired services are available. Through the Refuge's website and other means, information will be provided to enable the public to access and enjoy the Refuge safely and with minimal impact (Objective 9.2). Through identification and administration of existing 17(b) easements, access across Native corporation lands to Refuge lands will be provided, consistent with applicable laws and policies (Objective 5.6 and Chapter 2, Section 2.4.14.10).



Objective 5.2: Visitor Independence, Self-reliance, and Freedom—Consistent with resource protection, Refuge managers will continue to maximize opportunities for visitors to experience independence, self-reliance, and freedom by minimizing on-site contacts and acknowledging that in wilderness, there can be risk.

Rationale: Information on visitor experiences and preferences gained through scoping comments, previous planning efforts, the 2008 Visitor Study, media accounts, and personal contacts indicates that freedom and independence are highly valued components of visitors' experiences. They are vulnerable, however, to well-intended and often small measures that make the visitor's experience more convenient or predictable. Consistent with resource protection, the Refuge will strive to avoid the incremental and cumulative erosion of these experiences and consider them in the development and implementation of all visitor use programs and policies.

Strategy: Visitor outreach will emphasize self-reliance. We will provide awareness that in this arctic landscape there can be risk but through proper preparations, visitors can still have the opportunity to experience freedom and independence. Visitor programs will consider independence, self-reliance, and freedom as valued and legitimate trip components. Managers will employ the least intrusive means of visitor use management including minimizing our on-site contacts with visitors, especially in designated Wilderness. Outreach specialists will provide visitor programs and other informational materials to visitors before they enter the backcountry to minimize intrusion on visitor experience. Outreach will include strategically providing recreational information as a way to encourage dispersing use amongst sites, thereby helping to relieve real or perceived overcrowding or resource impacts. Outreach staff will also prioritize the methods they use to reach visitors (in descending order): web-based; off-Refuge in gateway communities at interagency and community visitor centers and kiosks; distribution by commercial service providers; staff contacts at airports, remote landing areas,

and transportation hubs; and finally, as known resource issues emerge, remote field contacts by Refuge staff and enforcement officers.

Objective 5.3: Adventure, Challenge, Exploration, and Discovery—Consistent with resource protection and visitor safety, Refuge managers will perpetuate opportunities for visitors to experience adventure, challenge, exploration, discovery, and a sense of the unknown by minimizing placement of recreational facilities on Refuge lands.

Rationale: Information on visitor experiences and preferences indicates these dimensions are central to those seeking authentic adventure and expeditionary opportunities for which the Refuge is renowned. Recreational improvements such as bridges, hand rails, established trails, and directional signs may diminish experiences for many visitors to Arctic Refuge. Standard information recommending trip routes, river crossings, best fishing areas, and featuring landmarks would also diminish the area's quality as an adventuring ground. General information can be provided that enables visitors to access and enjoy the Refuge in a safe and environmentally sound manner and that enhances their appreciation of the increasingly rare opportunity for discovery.

Strategy: To perpetuate opportunities for adventure, challenge, exploration, and discovery, managers will avoid placing permanent directional signs, designated trails, and/or structures (i.e., visitor centers, kiosks, bridges, hand rails, etc.) on Refuge lands, especially in the designated Wilderness area. Temporary damage control signing or actions may become necessary from time to time. Outreach specialists will provide visitor programs and other informational materials to visitors before they enter the backcountry to minimize intrusion on visitor experience (see Objective 5.2).

Objective 5.4: Visitor Use Management Plan—Refuge staff will complete a Visitor Use Management Plan (VUMP) that evaluates a range of management options and provides visitor opportunities while protecting, sustaining, and where necessary, restoring the natural conditions and special values of Arctic Refuge.

Rationale: Arctic Refuge functions as a nationally important benchmark for wilderness characteristics and exceptional visitor experiences in a premier setting, unique within the Refuge System. Public access to Refuge lands for recreation is allowed, subject to the provisions in Section 1110 of ANILCA. The Refuge Improvement Act mandates Refuge managers provide the public with opportunities for wildlife-dependent recreation. Managers may provide other recreational opportunities for the public to use and enjoy Refuge lands if these activities are compatible with the purposes of the Refuge and the conservation mission of the Service.

Arctic Refuge has important local, state, and national constituents and partners that must be considered when developing visitor use programs and policies. The Refuge's public constituencies and professional partners expect Refuge managers to effectively manage visitor uses to maintain quality experiences and protect habitats and wildlife on Refuge lands. Managers at the Refuge have decided that options for visitor use management would be best addressed through a public planning process.

Strategy: Visitor use management is defined as the dynamic process of planning for and managing all aspects of visitor use and the setting in which that use occurs. This is accomplished through a diverse range of strategies and tools to sustain desired resource

conditions and visitor experiences. Aspects of visitor use include levels of use, timing and distribution of use, and activities and behaviors of visitors. Strategies and tools may include outreach, site management, regulation, enforcement, and rationing or allocation.

Refuge managers will immediately begin the VUMP following approval of the Revised Plan. The VUMP will evaluate private recreation and recreation supported by commercial service providers and the effects of these on visitor experiences and resources on Refuge lands. Managers estimate the VUMP will take 3-5 years to complete. Refuge managers, working with a planning team, will concurrently prepare the VUMP and a WSP (Objective 2.4). The VUMP will address visitor use issues identified during this planning process and assess visitor impacts and information needs. The management strategies prescribed in the Revised Plan will be used in the interim to manage visitor use during the development of these step-down plans.

The Service will recruit an experienced recreation planner to lead the Refuge staff, planning team, and partners in developing and implementing the VUMP. This planning process and environmental analysis will include substantial public involvement at the village, local, state, and national levels. Public input will help managers decide what specific conditions and visitor experiences will be available to the public at Arctic Refuge. The desired conditions and experiences will meet Refuge purposes and protect and sustain the Refuge's special values. Managers will determine what actions they can use to affect these conditions and experiences. Managers expect the VUMP will propose a range of management actions that will be considered for the entire Refuge. In the designated Wilderness area, managers will focus on the least intensive and least visible actions. The VUMP will be used by managers to determine tools and schedules for monitoring desired conditions and experiences, and actions for restoring conditions where necessary.

Objective 5.5: Commercial Visitor Services—Refuge managers will continue to authorize commercial visitor services to facilitate wildlife-dependent and other compatible public recreation activities such as transportation services and guided backpacking, hunting, fishing, and float trips.

Rationale: Arctic Refuge is large and remote and some visitors desire the services of commercial operators to provide access and/or guide services to enjoy recreational opportunities provided by the Refuge. Commercial services can be provided on national wildlife refuges and must be monitored to ensure they are compatible with Refuge purposes. Commercial services are authorized through the Service's special use permit system, which was designed to meet the mission of the Service while allowing for responsible commercial activities. The Wilderness Act prohibits commercial enterprises but authorizes commercial visitor services to the extent they are necessary to realize the recreational purposes of the designated Wilderness area. Commercial visitor services on all Refuge lands are subject to provisions found in ANILCA. Managers at the Refuge value the assistance of the commercial service providers in reporting visitor use trends and resource impacts, informing visitors about resource values, and providing key messages about stewardship of Refuge lands.

Strategy: Refuge managers will continue to issue special use permits for commercial services that support recreation on Refuge lands. Refuge staff will manage the use of commercial activities through special conditions in those permits. Refuge managers and their staff will continue to work with commercial service providers to give information to their clients about Refuge regulations, resource concerns, and special values. The VUMP will further address

concerns about commercial services identified during public involvement for both this Plan and the step-down planning process (see Objective 5.4).

Objective 5.6: Visitor Management Coordination with Neighbors—Refuge staff will continue to coordinate with landowners, in and adjacent to the Refuge, to increase respect for private lands and to encourage a conservation ethic and stewardship behaviors in both visitors and landowners.

Rationale: Refuge managers will work with visitors and Refuge neighbors to address public use impacts, such as trespass, trash, and other issues of concern to adjacent landowners and on private lands inside the boundaries of Arctic Refuge that may result from public use of Refuge lands. Neighbors include the Arctic Slope and Doyon regional corporations, tribal councils, Native corporations, allotment and other private landowners, and the Toolik Lake Research Station. Refuge managers will work with the neighboring landowners, commercial operators, and others to develop solutions to public use impacts that are acceptable to all parties.

Strategy: Refuge managers and their staff will increase outreach to visitors at access points and other places near the boundaries of the Refuge. Managers will closely cooperate with the Alaska Native corporations in the area to develop a detailed land status map that can be used by the general public to navigate to 17(b) easements and locate public and private lands. This map will be posted on the Refuge’s website to help visitors plan their trips to Arctic Refuge. The map will be given to all commercial operators to give to their clients and posted on kiosks at all Refuge access points. Other strategies may be developed during preparation of the VUMP.

Objective 5.7: Coordinated Law Enforcement—Managers at Arctic Refuge will work with Refuge officers and other authorities to strengthen and unify their law enforcement efforts on Refuge lands and waters to promote conservation stewardship.

Rationale: Arctic Refuge is vast and remote with boundaries adjacent to Alaska coastal waters, Canada, the Dalton Highway, Venetie Tribal Lands, Yukon Flats National Wildlife Refuge, and State and Native corporation lands. Rangers from Gates of the Arctic National Park and Alaska Wildlife Protection Officers occasionally share use of our field facilities at the Galbraith Lake, Big Ram Lake, and Lake Peters.

Strategy: Refuge law enforcement officers will continue to conduct regular patrols on the Refuge and improve partnerships with other Federal and State law enforcement authorities in the area. Refuge officers will work together with officers from the Service’s Office of Law Enforcement, the Alaska State Troopers, Village Police Officers, Bureau of Land Management (BLM), NPS, U.S. Coast Guard, Royal Canadian Mounted Police, Canadian Wildlife Service, and Parks Canada to coordinate activities, resource availability, and operations in the field. Subject to appropriate land management designations and the nature of law enforcement actions, the Refuge and its law enforcement partners will coordinate with the appropriate jurisdictions to conduct, in priority order: 1) immediate enforcement actions in urgent cases for all Refuge lands; 2) patrols in specific places based on known resource threats; and 3) occasional routine patrols. These coordinated efforts will benefit resource protection on the Refuge.

There are two officers on the staff of Arctic Refuge, one of which is an Alaska Native. Officers from the Yukon Flats National Wildlife Refuge, also operated out of the Service’s Fairbanks

office, are available to assist on Arctic Refuge when needed. One of these officers is an Alaska Native. Refuge managers will also seek funding and authorization to hire one additional law enforcement officer to work in Arctic Refuge (and be stationed near the Refuge) and share enforcement duties with neighboring Yukon Flats and Kanuti refuges. To help address subsistence and resource issues, Refuge officers will continue targeted patrols in and around Native villages and subsistence areas, and at access points during key visitation times such as general hunting seasons.

Objective 5.8: Visitor Study—Refuge staff will maintain long-term data that informs Service leadership and Refuge managers about why people visit Arctic Refuge, what they experience, and their preferences.

Rationale: To best serve the visiting public, the Refuge needs to understand and monitor trends in the experiences and preferences of Refuge visitors.

Strategy: Motivations, experiences and preferences of Refuge visitors were sampled in the 2008 Arctic National Wildlife Refuge Visitor Study (Christensen and Christensen 2009). The study provided important information about the qualities of the Refuge, experiences that are most important to visitors, reasons people visit the Refuge, demographic information, and opinions of visitors regarding current and potential actions to manage recreation on Refuge lands. Refuge staff will work with researchers and the State to repeat this study beginning in 2013, with long-term monitoring intervals to be determined through the VUMP and WSP. The 2013 study will provide information important for the development of the VUMP (Objective 5.4) and the WSP (Objective 2.4). The study design may be modified somewhat after completion of these two step-down plans so that relevant data can be collected and used to inform the management actions and monitoring programs prescribed in these plans.

Short-term Priorities (Years 4-8)

Objective 5.9: Aircraft Landing Impacts—Refuge managers will implement strategies to address impacts to sensitive vegetation caused by aircraft landings on Refuge lands.

Rationale: The vast majority of access to the Refuge, for both administrators and recreational visitors, is by aircraft. Aircraft landings on sensitive tundra surfaces are creating new landing areas and causing visible scarring and occasionally rutting. These types of impacts are directly related to public use and, increasingly, are a source of complaint.

Strategy: As part of the Visitor Use Management and Wilderness Stewardship planning processes, the Refuge will work closely with commercial air service providers and other interested parties to: 1) ensure that safety remains a primary concern; 2) document the condition and trends in established and emerging landing areas; 3) examine availability of durable landing areas, recognizing their often ephemeral nature; 4) identify and engage key partners and the general public in discussion about landing area conditions; and 5) formulate and implement management strategies that protect the land, vegetation, and wilderness characteristics.

2.1.6 Goal 6: The effects of climate change on Refuge resources are evaluated through research, monitoring, and local traditional knowledge, and these effects are considered in Refuge management decisions.

Ongoing and Immediate Priorities (Years 1-3)

Objective 6.1: Effects of Climate Change—Coincident with revision of the I&M Plan, Refuge biologists will evaluate potential effects of climate change on Refuge resources, and incorporate study of these effects into the revised I&M program.

Rationale: Climate change is intensified at high latitudes, making the Refuge particularly vulnerable to ecological effects. Long-term monitoring studies are needed to detect changes that may be subtle and/or cumulative. To ensure that monitoring efforts for potential climate-change effects will be consistently applied and peer reviewed, they should be specified in the Refuge's I&M and Research plans (Objectives 1.2 and 1.3).

Strategy: We will incorporate assessment of climate change effects into our ecological inventory, monitoring, and research programs. Evaluation of potential climate change effects will be based on literature review, e.g., the Arctic Climate Impact Assessment (2005) and the work of the Intergovernmental Panel on Climate Change (e.g., IPCC 2007a, b, c). Work will be conducted with partners, including the National Wildlife Refuge System I&M program, the Arctic and Northwestern Interior Forest LCCs, North Slope Science Initiative, USGS Alaska Climate Science Center, the State of Alaska, tribal governments, and Native corporations. Modeling of future scenarios will also be pursued to evaluate potential effects of climate change on Refuge resources, including threatened and endangered species, species at risk of endangerment (e.g., birds of conservation concern (Service 2008a)), vulnerable habitats, and fish and wildlife species important for subsistence.

Objective 6.2: Consider Climate Change and Non-climate Stressors—Refuge managers will consider climate change and other non-climate stressors when making management and administrative decisions.

Rationale: The effects of climate change are exacerbated at high latitudes, including Arctic Refuge. Contemporary climate change has already affected habitats in the Refuge, and more severe future effects are likely. At the same time, other stressors such as development in adjacent areas or along wildlife migration routes, air pollution transported to the Refuge from industrial and other human activity, contaminants, and disturbance may have cumulative effects on resources in the Refuge.

Strategy: Identification of stressors and evaluation of their effects on species and ecosystems in the Refuge will be addressed through I&M and research planning and implementation (Objectives 1.2 and 1.3). The Refuge Manager will consider effects of current and likely future climate change and other stressors when evaluating management activities such as monitoring and research, special use permitting, and changes to wildlife harvest regulations. Maintaining migratory pathways and reducing non-climate stressors when possible will facilitate adaptation of fish and wildlife to climate change. Strategies to mitigate effects of stressors may be implemented, consistent with Refuge goals, objectives, and management guidelines.

Objective 6.3: Collaboration on Climate Change—Refuge managers and scientists will maintain and enhance their involvement in broad-scale programs studying the effects of climate change in arctic and subarctic environments.

Rationale: Climate change and other environmental perturbations occur on a worldwide scale and include many potential effects and broad-scale considerations that are beyond the expertise or capacity of Arctic Refuge staff. We need to collaborate with specialists from diverse fields of expertise to address issues of broad-scale environmental change.

Strategy: We will strengthen collaboration with others on climate change research and monitoring (e.g., Arctic and Northwestern Interior Forest LCCs, National Wildlife Refuge System I&M Program, USGS Alaska Climate Science Center, Study of Environmental Arctic Change, Global Observation Research Initiative in Alpine Environments, International Tundra Experiment, Arctic Coastal Dynamics, Arctic Borderlands Ecological Knowledge Cooperative). Our efforts will include evaluation of abiotic and biotic components, plus modeling efforts to predict environmental changes. Management decisions will incorporate the best available science, but we will acknowledge the uncertainty of predictions and be adaptive to accommodate changing situations. In addition, the Refuge will work with local villages and tribes to collect traditional ecological knowledge of how the region's fish, wildlife, habitats, and ecosystems are responding to climate change.

Objective 6.4: Non-intervention Approach—For the foreseeable future, Refuge Managers will avoid actions aimed at resisting the effects of climate change on wildlife and ecosystems. Rather, managers will allow natural systems to adapt and evolve in response to changing climatic conditions.

Rationale: There are many unknowns related to climate change and its effects on wildlife and ecosystems. Actions such as active habitat manipulations designed to resist climate change effects by maintaining the status quo are impractical on the scale of Arctic Refuge, have potential to conflict with the Refuge's special values, and are likely to have unintended ecological consequences.

Strategy: Direct manipulations to resist effects of climate change on wildlife and ecosystems will generally be avoided. Rather, climate change adaptation will be facilitated by management actions designed to reduce non-climate related stressors that are under the control or influence of the Refuge. Examples may include actions that minimize disturbance to wildlife during vulnerable periods or protect Refuge habitats and migratory pathways from visitor-related impacts.

Long-term Priorities (9+ years)

Objective 6.5: Monitoring Biological Components Vulnerable to Climate Change—Monitoring targets within the Refuge’s Long-term Ecological Monitoring Program will include biological components identified in the Ecological Review as vulnerable to climate change.

Rationale: Successful monitoring of climate change effects is inherently a long-term commitment because changes may be gradual and initially obscured by natural inter-annual variation or by effects of other, more direct anthropogenic stressors.

Strategy: As part of our Long-term Ecological Monitoring Program (Objectives 1.2 and 1.9), specific efforts will focus on climate-vulnerable species and ecological communities, or lands for which the Service has trust responsibility. We will implement protocols identified in our I&M and Research plans and evaluated in our Ecological Review to acquire information related to climate-mediated effects on Refuge resources.

2.1.7 *Goal 7: Refuge staff and partners conduct research and monitoring in support of the Refuge’s role as an internationally recognized benchmark for naturally functioning arctic and subarctic ecosystems.*

Ongoing and Immediate Priorities (Years 1-3)

Objective 7.1: Collaborative Research—Refuge staff will support and/or participate in collaborative studies of arctic and subarctic ecological and physical systems that depend upon the essentially undisturbed environments and ecological processes on the Refuge.

Rationale: The Refuge is vast, and direct human impacts are rare to a degree that is increasingly uncommon in the modern world. Those who campaigned to establish the original Range stressed its value as a natural laboratory for understanding ecological systems. The size and diversity of the Refuge and the complexity of ecological processes that can be studied here necessitates cooperation and collaboration with scientists in diverse fields of specialization.

Strategy: We will seek funding and partnerships to participate in broad-scale collaborative studies of arctic and subarctic ecosystems. The Refuge is well positioned to contribute to broader understanding of how these ecosystems are changing and how such changes will affect the biosphere. Partners will represent State and Federal governmental agencies, academic institutions, non-governmental organizations, private industry, and tribes. We will actively participate in the Arctic and Northwestern Interior Forest LCCs, and the National Wildlife Refuges I&M Program. We will continue ongoing efforts such as collaboration with the Arctic and Boreal Long Term Ecological Research sites, the Arctic Coastal Dynamics Program, national and international bird and mammal working groups (e.g., Muskox Working Group, Porcupine Caribou Technical Committee, Arctic Shorebirds Demographic Network), and other regional, national, and international programs. When appropriate, biological staff will seek publication of research results in peer-reviewed literature. Staff will also transmit results through public media and other outreach methods to educate the public about the ecology of the Refuge and its scientific values.



Objective 7.2: International Treaties and Agreements—Refuge managers will continue to work with international partners to effectively manage resources at the landscape scale.

Rationale: ANILCA requires the Refuge to fulfill international treaty obligations of the United States with respect to fish and wildlife and their habitats. This purpose recognizes the role the Refuge plays in meeting treaty and agreement obligations related to conservation of the fish, wildlife, marine mammals, and migratory birds shared by many nations. The Refuge is part of a larger network of conservation authorities in the U.S., Canada and the circumpolar north that share resource responsibilities and concerns with agencies, conservation units, and other international working groups such as the Porcupine Caribou Management Board, International Porcupine Caribou Board, Vuntut and Ivavik National Parks, Old Crow Management Area, Arctic Borderlands Ecological Knowledge Cooperative, Northwest Territories Department of Environment and Natural Resources, Environment Yukon, the Canadian Wildlife Service, and Conservation of Arctic Flora and Fauna.

Strategy: We will coordinate and cooperate with adjacent land management units, resource management agencies, and conservation organizations on mutual fish and wildlife resource issues, fish and wildlife resource inventory and monitoring efforts, and climate change documentation. We will work cooperatively with Native Alaskan and First Nations people on conserving subsistence resources, and we will support the efforts of the Service offices of Migratory Bird Management, Marine Mammals Management, and others to fulfill treaty obligations involving Refuge resources.

Short-term Priorities (Years 4-8)

Objective 7.3: Encouraging Scientific Research by Cooperators—Within four years of Plan approval, Refuge biologists will develop and implement protocols and priorities that identify and encourage scientific research necessary for making informed management decisions, while ensuring that work conducted by cooperators is appropriate and compatible with Refuge purposes and special values, and the I&M and Research plans (see Objectives 1.2 and 1.3).

Rationale: The expertise and resources that scientific cooperators provide are essential for understanding complex ecological and physical systems on the Refuge. By identifying research needs and providing cooperators with a streamlined permitting process that also ensures appropriate protection of Refuge resources, we will attract specialists with skills that complement those of the Refuge's staff and ultimately result in more informed management decisions.

Strategy: As part of the I&M and Research planning efforts (Objectives 1.2 and 1.3), we will evaluate the process for permitting scientific work in the Refuge to ensure that high-priority scientific endeavors are encouraged. We will work with partners in the scientific community to address research needs in a collaborative manner, while ensuring that Refuge resources are protected (e.g., by conducting an MRA when research is proposed in designated Wilderness) and permit stipulations are met.

2.1.8 Goal 8: *In consultation with appropriate parties, the Refuge documents, conserves, and protects cultural resources, both historic and prehistoric, to allow visitors and community members to appreciate the interconnectedness of the people of the region and their environment.*

Ongoing and Immediate Priorities (Years 1-3)

Objective 8.1: Collaboration, Partnerships, and Traditional Knowledge—Refuge managers and other staff will continue to consult with local tribes and Native corporations and work with Native elders and others who possess knowledge of the area's cultural and traditional uses, landscapes, habitats, and resources to gain an understanding of past conditions and current observations.

Rationale: Local elders with knowledge of the area before the Refuge was established possess valuable information regarding past ecological conditions and traditional uses of Refuge lands. Time is of essence for interviewing and recording elders who have a close and deep connection to the land. Historical knowledge of species occurrence, abundance, and distribution, and of weather and ecosystem changes will help focus and direct future studies. Cooperative efforts will help bring together traditional ecological knowledge and western science to promote conservation of wildlife and wild landscapes for future generations.

Strategy: Refuge staff will increase existing efforts to collect traditional ecological knowledge from village elders. Interviews will focus on traditional access, changing landscapes, cultural resources, wildlife, and other important subsistence resources, and will start within two years. Information will be incorporated into a searchable database. The Refuge will continue to collaborate with the Arctic Borderlands Ecological Knowledge Cooperative, Native organizations such as the Council of Athabaskan Tribal Governments, North Slope Borough, Tanana Chiefs Conference, and the tribal governments of Fort Yukon, Kaktovik and Venetie,

and Arctic Village Council to collect and document traditional knowledge. Other partners could include the University of Alaska and the State of Alaska.

Objective 8.2: Cultural Resource Management, Monitoring, and Law Enforcement—Refuge staff will work with other cultural resource professionals to conserve and protect cultural resources by identifying important sites and areas at risk for vandalism or exposure from wind, water, or other environmental forces and by providing trained staff to monitor these sites with periodic site visits and law enforcement patrols.

Rationale: The Refuge has long-term responsibilities for cultural resources on Refuge lands and is directed by several laws and policies to manage and protect these resources (see Section 2.4.10.5). Training for appropriate staff on the kinds and value of cultural resources will provide the Refuge with several tools to manage cultural resources, monitor at-risk sites, and incorporate cultural resource values in their resource protection message. Identification of specific problem areas for monitoring will target high-profile activity areas for maximum deterrence. Cultural resource protection will be more effective if those conducting law enforcement patrols on the Refuge are aware of the locations of important resources and efforts are focused on those areas where resources are at greatest risk for vandalism or loss.

Strategy: Basic cultural resource, historic preservation, and consultation training will be provided to Refuge managers, other full-time and seasonal staff, and volunteers and will focus on how to protect archeological and historic resources and the legal and policy requirements for consultation and conservation of cultural resources. Refuge staff will complete training within two years of Plan's approval, or for new hires, within two years of assuming duties. Law enforcement personnel should receive specialized training. Upon Plan approval, law enforcement staff will incorporate patrols of known sites at risk into their resource protection activities. Sites will be added to these patrols as they are identified (see Objectives 5.7 and 8.4). Other Refuge staff will also monitor impacts to important cultural sites in conjunction with ongoing field work, when possible, or through targeted activities when needed.

Short-term Priorities (Years 4-8)

Objective 8.3: Integrated Cultural Resource Management Plan (ICRMP)—Service staff will prepare an ICRMP to improve conservation of cultural resources and provide guidance for cultural resource management on Refuge lands.

Rationale: An approved ICRMP has never been prepared for the Refuge. The ICRMP will contain an overview of Service cultural resource management authorities, responsibilities, and compliance requirements. It will identify inventories, archival research, ethnographic research, field surveys, evaluations, protections, and communications efforts that have taken place on the Refuge. The Refuge will work to develop partnerships and agreements for cooperative projects with museums, universities, Native organizations and tribal governments, and other institutions. This allows the partners to pool scarce resources and increase the amount of work they can complete. The Service will benefit from working with recognized experts and elders in the region and increase the value of its work to protect cultural resources.

Strategy: Within three years of Plan approval, Service staff will initiate preplanning by preparing an overview of Service cultural resource management authorities, responsibilities, and compliance requirements. Service staff will also conduct archival research to identify and begin compiling cultural inventories, reports and data, which will be incorporated into a

searchable cultural resource database. Refuge and other Service staff will then initiate the ICRMP with formal tribal and Native corporation consultation and the establishment of agreements and partnerships. The planning process will be conducted deliberately to fully meet our consultation and collaboration requirements. We will seek out partnerships with Alaska Native organizations such as Tanana Chiefs Conference, Council of Athabascan Tribal Governments, the Gwich'in Steering Committee, the North Slope Borough, Arctic Slope Regional Corporation, and First Nation groups. Other partners such as the State Historic Preservation Office, regional historical societies, traditional chiefs and village leaders, and the University of Alaska will be cooperatively involved in identifying future research and conservation needs for cultural resources on the Refuge. We expect to have an approved plan completed within six years of implementation of the Revised Plan. Refuge staff will consult with tribes and Native organizations and the regional historic preservation officer to revise the ICRMP every 10 years based on review of new information obtained through inventory, monitoring, and research. The Refuge will work with these partners to compile, store, manage, and share historical and contemporary data on cultural resources to both inform and enhance their conservation.

Long Term Priorities (9+ Years)

Objective 8.4: Improve Management through Increased Knowledge of Cultural Resources—Increase the knowledge and effectiveness of the Refuge's management of cultural resources through surveys of high priority historical, archaeological, and other cultural sites; literature searches; gathering oral histories and place name information; and compiling a comprehensive Cultural Resource Atlas and Archive.

Rationale: Section 110 of the National Historic Preservation Act requires all land-managing Federal agencies take action to identify, evaluate, and nominate to the National Register of Historic Places those historic properties that meet the criteria set forth in 36 CFR 800. Only limited areas of the Refuge have been systematically studied, leaving the vast majority unknown to archaeologists. A high degree of regional site variability exists in Arctic Refuge, but many questions about why such diversity exists and how it developed and was maintained are not well understood. In addition to addressing questions about regional and temporal variability, surveys in unknown areas will provide immediate and useful information on site locations, characteristics, and conditions needed to effectively manage these resources. This information will allow continued and focused research on prehistoric and historic cultural resources, including environmental and cultural change over time. Archaeological, cultural, and historical resources are irreplaceable archives of human and environmental history. Much valuable cultural, historic, and scientific information about the Refuge is contained in existing published and unpublished material. Similarly, place names contain an enormous amount of information on traditional uses, culturally important places, historic camps and settlements, and other cultural information. This information is an untapped archive that could potentially benefit both the Refuge and surrounding communities. Accessing place name information will recognize the critical role of local people in the natural and cultural heritage of the Refuge. Compiling all known information will make it possible to evaluate information needs and data gaps, and to set priorities for surveys and research in archaeological and historic site protection, public interpretation, and historic ecological information that is useful in wildlife and habitat management.

Strategy: Surveys will be conducted at a level sufficient to evaluate eligibility of sites for inclusion on the National Register of Historic Places without requiring a follow-up visit. While actual surveys will be conducted as funding and personnel become available, the initial identification of priority areas and scoping for the surveys should be completed as part of the Integrated Cultural Resources Management Plan (Objective 8.3). In the case of an emergency, such as severe erosion at an important site, the Refuge will take immediate action to survey and document the threatened resource. The Refuge will also review published and unpublished materials about archaeological, historical, and ethnographical resources in collaboration with local tribes, elders, Native organizations, and the University of Alaska Fairbanks. The directory and atlas should include a comprehensive Geographic Information System of place names for use by Refuge staff. A working database should be completed within 10 years of approval of the Revised Plan and should be periodically updated as new information is gathered.

Objective 8.5: Administrative History—Within 10 years of a Final Plan, the Service will create a comprehensive administrative and scientific history of the Refuge as a legacy for future managers, staff, and the public.

Rationale: Over time, Refuge staff and former employees have amassed a wealth of institutional information on the history of the Refuge. An organized and accessible comprehensive inventory will make the information available to Service staff, researchers, and the public, and identify gaps to be filled by collection of oral histories or archival research. It is especially important that oral histories be carefully documented.

Strategy: The Service will inventory and organize records for the Refuge's history and compile and conduct oral histories from key people associated with the Refuge's past.

2.1.9 *Goal 9: Refuge staff provides outreach information to distant audiences, individuals who enter the Refuge, and people in gateway communities, to enhance their understanding, appreciation, and stewardship of Refuge lands and resources.*

Ongoing and Immediate Priorities (Years 1-3)

Objective 9.1: Communicating with Distant Public—Refuge staff use the Internet and other communication technologies, and will add new technologies when appropriate, to provide timely and accurate information to the public about Refuge resources and purposes, management and conservation, and impacts, such as changing climate.

Rationale: Refuge staff relies on the Internet and other digital communication for almost all its contact with the public because the Refuge is large and remote. Most people who visit Arctic Refuge come from a distance and need information before they arrive, and most people who request information about Refuge lands and wildlife are also far away. Refuge staff recognizes that to keep future pathways of communication open to diverse national and international audiences, it must adopt new technologies and media as these become readily available to the public. These technology based outreach efforts are meant to supplement and inform, not replace, genuine on-the-land nature experiences. Staff shares information with the public about all aspects of the Refuge, its management, its physical and natural processes, and the impacts of climate change and other stressors on these processes.

Strategy: Refuge staff will continue to support and expand an extensive website at <http://arctic.fws.gov/>, maintain an email address at arctic_refuge@fws.gov, and host an active Facebook page at <http://www.facebook.com/arcticonationalwildliferefuge>. It will add additional social media sites as public desire and staff availability allow. Refuge staff will continue to use best practices in interpretation, environmental education, and other outreach methods. Examples of technology-based outreach efforts include responding to public email inquiries and producing information about invasive weeds, tundra swans, polar bear viewing, climate change impacts, limiting visitor impacts, commercial permits, wildlife art and education projects, and much more.

Objective 9.2: Inform Refuge Users—Refuge staff will continue to provide Refuge orientation and information and will increase outreach to Refuge users about opportunities, specially designated areas, minimum impact techniques and other best practices, and regulations to provide a quality experience and minimize human impacts to Refuge resources and values.

Rationale: A variety of people use Refuge lands. These individuals may be recreational visitors, subsistence users, scientific researchers, commercial operators, Refuge staff, and others. Arctic Refuge presents unique and potentially life-threatening challenges to those who travel into the Refuge. Some Refuge lands have special designations, such as Wilderness and Wild Rivers, which affect their use. Refuge staff recognizes the importance of providing information to Refuge users so they can adequately prepare for and safely enjoy their time in the Refuge.

Strategy: Refuge staff distributes a variety of outreach products directed at the needs of those who travel into the Refuge. Outreach topics include designated Wilderness and wild rivers, minimum impact protocols, “Kids in Nature,” bear viewing guidelines, bear conflict prevention, identification of and respect for private lands in and adjacent to the Refuge, limiting invasive plants, minimizing impacts where people tend to concentrate, and adequate trip preparation to ensure self-reliance. Refuge staff uses the Internet, mailings, kiosks and posters, and volunteers and staff in visitor centers and other locations to ensure that Refuge users have access to needed information.

Objective 9.3: Gateway Communities—Refuge staff, including Refuge Information Technicians (RITs) and volunteers, provide outreach information and participate in collaborative outreach activities in gateway communities to benefit participants and promote conservation of wildlife and natural landscapes.

Rationale: Close working relationships with communities can improve communication; inform residents, including students, about the Refuge and its programs; and help resolve community concerns about visitor impacts or Refuge management activities.

Strategies: Refuge staff, RITs, and volunteers will cooperate with community members and groups in the gateway communities of Kaktovik, Arctic Village, Coldfoot, Fort Yukon, and Fairbanks to address outreach issues that are of interest to residents and Refuge staff, and to undertake actions that directly connect the public with the natural world. Methods for implementing this objective include visitor centers and information kiosks, brochures, school presentations, and community presentations. RITs will be employed to improve communications between staff and residents in their communities, including translating outreach and environmental education information into Gwich’in and Inupiaq languages.

Long-term Priorities (9+ Years)

Objective 9.4: National Interest—Refuge staff will, on a 15-year cycle, perform a National Interest Study to inform the Service about the diverse national interests and values that Arctic Refuge holds for the broader public.

Rationale: Arctic Refuge, part of the National Wildlife Refuge System that is managed for the benefit of all Americans, continues to appear in the national spotlight. Refuge staff should be aware of the range of opinions the American public holds concerning the Refuge and its future. An unbiased and cost-effective way to assess the full range of public opinions is to conduct a nationwide (including Alaska) survey of all news articles and other published documents to assess how they characterize the Refuge.

Strategy: The 2009 Arctic Refuge National Interest Study (Christensen and Christensen 2009) surveyed news articles and other documents that identified the various opinions and values—tangible and intangible—Americans hold regarding Arctic Refuge and the issues relating to it. The study used well-tested computer techniques to analyze the content of articles and documents in a comprehensive database. Refuge staff will repeat this study every 15 years to determine how Americans' beliefs about, and values for, the Refuge change or persist over time.



2.2 Overview of Arctic Refuge Management Policies and Guidelines

Sections 2.3 through 2.5 describe direction for the management of Arctic Refuge. This direction is primarily guided by provisions in ANILCA; the National Wildlife Refuge System Administration Act, as amended by the National Wildlife Refuge System Improvement Act; the Refuge Recreation Act; the Endangered Species Act; the Alaska Native Claims Settlement Act; the Wilderness Act; and other national and regional regulations, policies, and guidance developed to implement these laws and the purposes of Arctic Refuge (Appendix A).

The management policies and guidelines published in comprehensive conservation plans for refuges in Alaska evolve over time in response to changing laws, policies, ecological conditions and understandings, and public awareness and preferences. These policies and guidelines vary among refuges because some refuges have unique purposes, and most have a unique set of special values. Refuge managers in Alaska are required by Section 304(g)(2)(B) of ANILCA to identify and describe the special values of a refuge before preparing a plan. This Plan describes 11 special values for Arctic Refuge that we determined should be protected and perpetuated through comprehensive Refuge management (Chapter 1, Section 1.5). A number of the established policies and guidelines were modified to enable managers at Arctic Refuge to meet this Refuge's specific purposes, perpetuate its special values, and continue its role and function in the larger National Wildlife Refuge System (Refuge System). Arctic Refuge's special values served as the primary basis for the unique management policies and guidelines found in this Plan and played a major role in developing the vision statement, goals, and objectives for the Plan. Management will primarily defer to natural processes and refrain from manipulating populations, habitats, and landscapes until all viable alternatives, including no actions, have been considered.

We changed Habitat Management (Section 2.4.11.1), Fish and Wildlife Population Management (Section 2.4.12), Fish and Wildlife Control (Section 2.4.12.7), and Fishery Restoration and Enhancement (Section 2.4.12.10) because in other plans these sections allowed for the use of management techniques, or actions, that substantially conflict with the relevant special values identified and described for Arctic Refuge. Examples of such management actions are mechanical habitat manipulation, water impoundments, fishery enhancement structures, and moving species to parts of the Refuge where they had not historically existed. Use of these techniques and tools at Arctic Refuge would substantially detract from the special values and distinctive role of Arctic Refuge within the larger Refuge System.

We changed Recreation and Public Use (Section 2.4.15), Public Use Facilities (Section 2.4.16), Cabins (Section 2.4.16.1), and Helicopters (Section 2.4.14.3). These revised sections of the Plan restrict various developments, facilities, public use cabins, and helicopter landings for recreational purposes because these would substantially detract from the existing conditions of the recreation setting and recreation opportunities, as reflected in the special values section of the Plan. For example, ANILCA allows public use cabins, but it does not mandate that refuges provide such structures. Managers at Arctic Refuge have decided not to provide public use cabins to protect and perpetuate unique recreational values (Chapter 1, Section 1.5.9).

This modified direction is unique to Arctic Refuge and is not intended to establish precedents or standard management policies and guidelines for other national wildlife refuges in Alaska or future comprehensive conservation plans developed by the Service.

The descriptions of the land management categories presented in this Revised Plan are not identical to those in the existing 1988 Plan for Arctic Refuge (Service 1988a). Until the Revised Plan is adopted for Arctic Refuge, if there is any conflict between the existing Plan and the new management categories, the direction in the existing Plan will take precedence over that contained in these guidelines for the management categories unless the conflict is the result of changes in law, judicial ruling, or other non-discretionary guidance.

2.3 Management Categories

Five management categories (Intensive, Moderate, Minimal, Wilderness, and Wild River) are used to describe the management levels throughout the Alaska refuges. A management category is used to define the level of human activity and development that is appropriate for a specific area of a refuge. A management category is a set of management directions applied to an area based on its resources and existing and potential activities or uses. These categories have been adopted and applied to accomplish Refuge purposes and achieve management goals. Lands in Arctic Refuge currently fall into three management categories: Minimal, Wild River, and Wilderness (Alternative A, Section 3.2.2). The Management Activities Table (Table 2-1) shows the administrative, public, and commercial activities and facilities that may be allowed in each management category and under what conditions. Direction is presented for the Intensive and Moderate Management categories to provide a basis of comparison and to be available if the Plan is amended to include either of these management categories. In Table 2-1, management categories that do not apply to current and proposed management of Arctic Refuge are shown over a grey background.

2.3.1 *Intensive Management*

The Intensive Management category is designed to allow compatible management actions, public facilities, and economic activities that may result in alterations to the Refuge environment. In Intensive Management areas, the presence of human developments and interventions may be very apparent. Roads, buildings, and other structures are likely to be seen. Intensive Management is applied to the smallest area reasonable to accommodate human developments and interventions.

Ecological processes or habitats may be modified through human intervention in an Intensive Management area. Habitats may be highly modified to enhance conditions for one or more species. For example, water regimes may be artificially controlled to improve habitat for waterfowl.

Substantial levels of public use may be accommodated and encouraged through alterations and modifications to the environment such as pavement, buildings, developed campgrounds, and other facilities. Public facilities are designed to provide a safe and enjoyable experience of the resources on Refuge lands and to increase understanding of fish and wildlife and their habitats for a wide range of visitors. Facilities are designed to accommodate a substantial number of visitors while protecting resources on Refuge lands from damage and visitor impacts.

Compatible economic activities or uses of resources on Refuge lands that result in alterations to the environment may be authorized in Intensive Management areas. All economic activities or uses must be compatible with Refuge purposes and the mission of the Refuge System. Economic activities or uses require official authorizations such as special use permits.

2.3.2 Moderate Management

The intent of Moderate Management is to allow compatible actions, public uses, commercial activities or uses, and facilities that may result in changes to the Refuge environment that are temporary or permanent but small in scale and that do not disrupt ecological processes. The natural landscape is the dominant feature of Moderate Management areas, although signs of human activities may be visible.

The intent of Moderate Management is to provide, restore, or enhance habitats to maintain healthy populations of plants and animals where ecological processes predominate. For example, logging and prescribed burning may be used to convert mature forests to an early seral stage to enhance browse for moose. In general, management facilities, both temporary and permanent, will be allowed for the purposes of gathering data to understand and manage resources and ecological systems of the refuges. Structures will be designed to minimize visual impact.

Public facilities provided in Moderate Management are designed to protect Refuge habitats and natural resources while allowing the public to enjoy and use resources on Refuge lands in relatively low numbers dispersed over a large area. The Moderate category also allows shorter-term enjoyment of resources on Refuge lands in focused areas as a means to concentrate visitors and impacts. The emphasis is on small facilities that encourage outdoor experiences. Facilities such as public use cabins, rustic campgrounds, kiosks, boardwalks, viewing platforms, trails, and toilets may be provided. Facilities will be designed to blend with the surrounding environment to minimize visual impacts.

Compatible economic activities may be allowed where impacts to ecological processes and habitats are temporary (e.g., small-scale logging where an earlier seral stage meets management goals; support facilities for commercial service providers; or cabins that encourage enhanced public use). All economic activities and facilities require authorizations such as special use permits.

2.3.3 Minimal Management

Minimal Management is designed to maintain Refuge environments with minimal or no evidence of human modifications or changes. Habitats are allowed to change and function through ecological processes. Administration will ensure that the resource values and environmental characteristics identified in a refuge's comprehensive conservation plan are conserved. Public uses, economic activities or uses, and facilities shall minimize disturbance to habitats and resources. Ground-disturbing activities are to be avoided whenever possible.

Management actions in this category focus on understanding ecological systems and monitoring the health of resources on Refuge lands. Generally, no roads or permanent structures are allowed (except cabins). Temporary structures may be allowed in situations in which removal of the structure is planned after the period of authorized use, and the site can be rehabilitated using native plantings from the immediate adjacent area. Existing cabins may be allowed for administrative, public, subsistence, commercial, or economic (e.g., guiding) purposes. New subsistence or commercial cabins may be authorized if no reasonable alternatives exist. Public use or administrative cabins may be constructed if necessary for health and safety.

Public use of Refuge lands is encouraged for hunting, fishing, wildlife observation and photography, interpretation and environmental education, and subsistence activities. Public use

facilities are generally not provided. Mechanized and motorized equipment may be allowed when the overall impacts are temporary or where its use furthers management goals.

If a transportation or utility system, as defined in Section 1102 of ANILCA, is proposed to cross an area in Minimal Management, the authorization process will incorporate a corresponding amendment to the comprehensive conservation plan to change the management category in the affected area from Minimal to Moderate or Intensive Management, as appropriate.

Compatible economic activities may be allowed where the evidence of those activities does not last past the season of use, except as noted in the preceding discussion of cabins. The primary economic activities are likely to be commercially-supported recreational activities such as hunting, fishing, hiking, river floating, and sightseeing. All economic activities and facilities require authorizations such as special use permits.



2.3.4 *Wilderness Management*

The Wilderness Management category applies to areas designated by Congress as units of the National Wilderness Preservation System (NWPS). The Refuge manages approximately 7.16 million acres of designated Wilderness in the northeast section of the Refuge. Any areas proposed for designation under the Wilderness Act will be managed under Minimal Management, consistent with Section 1317(c) of ANILCA and Service policy. Designated Wilderness will be managed under the Wilderness Act of 1964 and the special provision of ANILCA. Because the designated Wilderness area in Arctic Refuge is part of the NWPS, the Service recognizes that responsibilities for managing designated Wilderness go beyond the mission of the Service. For the designated Wilderness area, the purposes of the Wilderness Act are within and supplemental to the other purposes for which Arctic Refuge was established. (See Section 2.4.20 for guidelines on management of designated Wilderness areas in Alaska.)

The history and intent of the Wilderness Act encourages managers to hold a broad perspective of the Refuge landscape, one that extends beyond managing designated Wilderness solely as wildlife habitat. It is managed as an area “retaining its primeval character and influence.” Designated Wilderness provides visitors with opportunities for “solitude or a primitive and unconfined type of recreation.” Recreation in designated Wilderness areas has been characterized by an array of experiences such as discovery, self-reliance, remoteness, closeness to nature, challenge, self-reflection, and freedom from societal and managerial constraints (e.g., Hollenhorst and Jones 2001, Landres et al. 2008, Patterson et al. 1998).

Designated Wilderness areas are managed for a number of purposes, including preservation of experiential and symbolic values that are important to people. Wilderness areas are “devoted to the public purposes of recreational, scenic, scientific, educational, conservation, and historical use” (Wilderness Act, Section 4(b)). Research has shown that some values of designated Wilderness areas extend beyond their boundaries to people who may never visit but who benefit from the protection of ecological processes—benefits such as clean air and water and the knowledge that such places exist (Cordell et al. 1998). In managing designated Wilderness, Refuge managers are encouraged to consider, in decision making, off-site and symbolic values, as well as on-site and tangible experiences and resource values.

Permanent structures are generally prohibited. Exceptions include historic and cultural resources and, in certain circumstances, administrative structures or cabins that predate ANILCA; cabins that are necessary for trapping activities; and public use cabins necessary for the protection of human health and safety. Facilities and structures are rustic and unobtrusive in appearance.

Compatible commercial services or uses of designated Wilderness areas are generally limited to those activities that facilitate solitude and a primitive, unconfined type of recreation (e.g., guided fishing, hunting, and river floating or hiking into designated Wilderness areas). All commercial services and facilities require authorizations such as special use permits.

Actions such as prescribed fires or invasive species control may be conducted when it is necessary to protect life or property or when it is necessary to restore, maintain, or protect the aforementioned characteristics of designated Wilderness.

All Refuge management activities in designated Wilderness must be supported by an MRA whether or not any prohibited uses are proposed. Normally prohibited uses (e.g., motor vehicles, motorized equipment, helicopters, structures, installations, temporary roads, etc.) will be approved only where found to be the minimum necessary to manage the area as Wilderness.

2.3.5 Wild River Management

The Wild River Management category applies to those rivers and corridors of adjacent lands that have been designated by Congress as part of the Wild and Scenic Rivers System under the Wild and Scenic Rivers Act of 1968. It is the policy of the United States that “certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations” (P.L. 90-542, Section 1(b)). Other protected values of designated rivers may include features of scientific importance, archaeological resources, and aesthetic qualities.

In the Wild River Management category, water bodies are maintained in natural, free-flowing, and generally undisturbed conditions. Each river in the Wild and Scenic Rivers System has particular values for which it was designated, and management of a wild river must protect those specific values. Management actions will focus on understanding, monitoring, and maintaining the natural resources, ecosystem function, and aesthetics of the river corridor.

All designated rivers on refuges in Alaska are classified as wild rivers. Wild rivers are those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and waters unpolluted. Any portion of a wild river that is in designated Wilderness is subject to the provisions of both the Wilderness Act and the Wild and Scenic Rivers Act; in case of conflict between the provisions of these laws, the more restrictive provisions apply. Permanent structures generally are not allowed, with the exception of historic and cultural resources and, in certain limited circumstances, subsistence or administrative cabins and associated structures. Cabins, temporary structures, and hardened sites should not be visible from the river; where this is not practicable, facilities and structures are to be rustic or unobtrusive in appearance. Refuge managers will provide opportunities for low-impact, backcountry recreation experiences.

ANILCA designated those portions of the Ivishak, Sheenjek, and Wind rivers in the boundaries of the Refuge as wild rivers under the Wild and Scenic Rivers Act. Sixty-one miles of the 95-mile long Ivishak River lie in Arctic Refuge. A 191-mile segment of the Sheenjek River is classified as wild. The Wind River, also classified as wild, flows for 102 miles and is entirely in Arctic Refuge. Please refer to Section 4.1.3.4 in Chapter 4 for more information about these wild rivers.

The Wild and Scenic Rivers Act requires the Service to preserve the values and characteristics of these wild river corridors in Arctic Refuge. Compatible uses of the Ivishak, Sheenjek, and Wind wild river corridors will be allowed where those activities do not detract from their (outstandingly remarkable) special values. Primary commercial activities or uses are likely to be recreation services such as guided float trips, sightseeing, photography, fishing, and hunting trips. All commercial activities and facilities require authorizations such as special use permits.

2.3.6 Special Management Areas

Special management lands are managed in one of the categories described previously with added requirements related to their establishment and special status. Special management areas in Arctic Refuge include the Firth- Mancha Research Natural Area (RNA), the Shublik Springs RNA, the Neruokpuk Lakes Public Use Natural Area (PUNA), and the Arctic National Wildlife Refuge Marine Protected Area (MPA). Please see Chapter 4 for more information about these lands.

2.3.6.1 Management of Selected Lands

The Service retains management responsibility for lands selected but not yet conveyed to Native village and regional corporations or to the State of Alaska. The appropriate Native corporation or agency of the State will be contacted and its views considered prior to issuing a permit involving these lands. Fees collected for special use or right-of-way permits will be held in escrow until the selected lands are conveyed or relinquished. Management of selected lands will be the same as for adjacent Refuge lands.

2.3.6.2 Alaska Native Claims Settlement Act Section 22(g)

Section 22(g) of the Alaska Native Claims Settlement Act (ANCSA) provides that those Refuge lands established prior to December 18, 1971, and conveyed under that act remain subject to the laws and regulations governing the use and development of the Refuge. The compatibility standard, as it applies to activities occurring on these lands, is described in 50 CFR 25.21(b)(1). In addition, the Service retains the right of first refusal on village corporation lands if these lands are ever offered for sale. Arctic Refuge will work with landowners to balance the commercial development and use of 22(g) lands with the protection of resources important to Refuge purposes.

Arctic Slope Regional Corporation (ASRC) received a large tract of subsurface through the Chandler Lake Land Exchange of August 9, 1983. Under the agreement, the United States transferred subsurface rights under Kaktovik Iñupiat Corporation (KIC) lands on the Refuge's coastal plain (more than 90,000 acres) in exchange for 101,272 acres of private surface lands in Gates of the Arctic National Park. The commercial development of oil and gas from ASRC's acquired subsurface in the Refuge is contingent upon an act of Congress, as provided in ANILCA Sections 1002 and 1003. ASRC may remove sand and gravel from these lands, provided they follow provisions in the Chandler Lake Exchange agreement that specify how and where sand and gravel pits are located and developed. The exchange included land use stipulations to ensure the conveyance of the subsurface to ASRC would not "undermine the essential integrity of the Arctic National Wildlife Refuge and will not frustrate the purposes of the Refuge." The stipulations remain with the land even if it is sold or exchanged.

2.4 Management Policies and Guidelines

2.4.1 Introduction

Refuge management is governed by Federal laws such as the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd), as amended, (Refuge Administration Act); National Wildlife Refuge System Improvement Act of 1997, an amendment to the Refuge Administration Act (P.L. 105-57) (Refuge Improvement Act); Wilderness Act (P.L. 88-577); and ANILCA. Refuge management is directed by regulations implementing these laws; treaties; Service policies; and principles of sound resource management—all of which establish standards for resource management or limit the range of potential activities and uses that may be allowed on the refuges.

ANILCA authorizes traditional activities such as subsistence, the exercise of valid commercial fishing rights, hunting, fishing, and trapping in accordance with State and Federal laws. Service regulations state that “public recreation activities within the Alaska national wildlife refuges are authorized as long as such activities are conducted in a manner compatible with the purposes for which the areas were established” (50 CFR 36.31(a)). Such recreation activities include but are not limited to sightseeing, nature observations and photography, hunting, fishing, boating, camping, hiking, picnicking, and related activities. The Refuge Administration Act, as amended by the Refuge Improvement Act, defines “wildlife-dependent recreation” and “wildlife-dependent recreational use” as “hunting, fishing, wildlife observation and photography, or environmental education and interpretation” (16 U.S.C. § 668ee). These public activities are encouraged and emphasized in visitor management programs on refuge lands in Alaska.

2.4.2 Human Safety and Management Emergencies

When management emergencies occur on the Refuge, it may be necessary to deviate from management policies and guidelines discussed in this Plan. Actions not normally allowed on the Refuge or under a specific management category, as shown in Table 2-1, may be allowed when needed during or as a result of management emergencies.

Management emergencies include threats to human health and safety and threats to resources on Refuge lands. For example, emergencies could arise that jeopardize threatened or endangered species, natural diversity, water quality and/or quantity, or subsistence resources. The introduction of an invasive species is another example of a management emergency. In management emergencies, the Refuge manager is authorized to take whatever prudent and reasonable actions are necessary.

For emergencies not related to human health and safety, the manager must consider the immediate and long-term effects of potential response actions on all Refuge purposes, goals, objectives, and special values. Urgent situations that require actions taking longer than 30 days require a compatibility determination, National Environmental Policy Act (NEPA) compliance, and an ANILCA Section 810 evaluation of potential impact to subsistence.

2.4.3 Land Exchanges and Acquisitions

Under Section 1302 of ANILCA, and subject to certain restrictions, the Service may acquire by purchase, donation, or exchange any lands inside the boundaries of Alaska refuges. Proposed land exchanges or acquisitions must benefit fish and wildlife resources, satisfy other purposes for which the Refuge was established, or be necessary to satisfy other national interests.

In 1988, Congress amended the general exchange of Section 1302 by requiring an Act of Congress before the Secretary can convey “by exchange or otherwise, land or interests in lands within the Coastal Plain of the Arctic National Wildlife Refuge” (P.L. 100-395). The amendment addressed Congressional concerns that exchanges could ultimately preempt the authority of Congress to make the decision of whether to lease and develop oil and gas resources of the coastal plain.

Other laws provide the Service authority to purchase conservation easements (Service Manual 341 FW 1, Exhibit 1) or enter into cooperative management agreements to satisfy Refuge purposes, national interests, or other objectives.

2.4.4 Land Protection Plans

DOI and Service policies require development of a step-down plan, called a land protection plan, to address priorities for habitat conservation inside Refuge boundaries. LPPs inform private landowners what land inside Refuge boundaries the Service would like to see conserved for fish and wildlife habitat. The plans do the following:

- Identify the private lands inside Refuge boundaries that the Service believes have important conservation values
- Display the relative protection priority for each parcel
- Discuss alternative means of land and resource conservation
- Analyze the impacts on local residents of acquisition

The Service acquires land, or land interests such as conservation easements, only from those landowners who are willing to sell, and it only does so when other methods of achieving goals are not appropriate, available, or effective. Sometimes resource conservation goals can be met through cooperative management agreements with landowners or by similar means. The Service and Arctic Refuge will work with all landowners to ensure that overall fish, wildlife, and habitat values in the Refuge are conserved.

- A land protection plan for Arctic Refuge is scheduled to be completed in 5–8 years of approval of this plan.

A pre-acquisition environmental site assessment is required for all real property proposed for acquisition by the Service or for public domain lands returning to Service jurisdiction (Service Manual 341 FW 3).

2.4.5 Appropriate Refuge Uses

Comprehensive conservation plans include a review of the appropriateness and compatibility of existing uses and any planned future public uses of Refuge lands. All uses of a national wildlife refuge over which the Service has jurisdiction must be determined to be appropriate under the Appropriate Refuge Uses Policy (Service Manual 603 FW 1). An appropriate use of a national wildlife refuge is a proposed or existing use that meets at least one of the following four conditions:

1. The use is a wildlife-dependent recreational use as identified in the Refuge Improvement Act, Section 5(2) (i.e., “hunting, fishing, wildlife observation and photography, or environmental education and interpretation”).
2. The use contributes to fulfilling Refuge purpose(s), the Refuge System mission, or goals or objectives described in a Refuge management plan approved after October 9, 1997, the date the Refuge Improvement Act was signed into law.
3. The use involves the take of fish and wildlife under State regulations.
4. The Refuge manager has evaluated the use following guidelines in the Service Manual 603 FW 1.11 in the subsequent text and found it appropriate.
 - a. Do we have jurisdiction over the use?
 - b. Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?
 - c. Is the use consistent with applicable Executive orders and DOI and Service policies?
 - d. Is the use consistent with public safety?
 - e. Is the use consistent with goals and objectives in an approved management plan or other document?
 - f. Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed?
 - g. Is the use manageable with available budget and staff?
 - h. Will this be manageable in the future with existing resources?
 - i. Does the use contribute to the public’s understanding and appreciation of the Refuge’s natural or cultural resources, or is the use beneficial to the Refuge’s natural or cultural resources?
 - j. Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality, compatible, wildlife-dependent recreation in the future?

This Plan identifies those existing and proposed uses that were found appropriate and for which compatibility determinations were drafted for public review (refer to the compatibility determinations for any temporal, geographic, or other stipulations specific to the use (Appendix G)):

- State of Alaska Routine Wildlife Management Activities
- Commercial Air Transportation Services
- Commercial Big-game Hunting Guide Services
- Commercial Recreational Fishing Guide Services
- Commercial Recreational Guide Services
- Commercial Videography and Audio Recording

- Commercial Shore-Fast Sea Ice Access
- Non-Wildlife-Dependent Recreational Activities
- Reburial of Human Remains per State and Federal Guidelines
- Recreational (General) Fishing
- General Hunting
- Furbearer Trapping (Non-Subsistence)
- Scientific Research
- Subsistence Harvest of House Logs
- Subsistence Activities
- Waste Cleanup and Site Remediation
- Wildlife Observation, Wildlife Photography, Environmental Education, and Interpretation

All current appropriate use documentation for Arctic Refuge is on file at the Refuge headquarters and the Alaska regional office. If additional activities or uses not addressed in this Plan are proposed for the Refuge, the Refuge manager will determine if they are appropriate uses following the guidance in Service Manual 603 FW 1.



2.4.6 Compatibility Determinations

The Refuge Administration Act states, “the Secretary [of the Interior] is authorized, under such regulations as he [or she] may prescribe, to ... permit the use of any area within the [Refuge] System for any purpose, including but not limited to hunting, fishing, public recreation and accommodations, and access whenever he [or she] determines that such uses are compatible ... ”

A compatible use is a proposed or existing wildlife-dependent recreation use or any other use of a national wildlife refuge that, based on sound professional judgment, would not materially interfere with nor detract from the fulfillment of the Refuge System mission or the purposes for which a national wildlife refuge was established. Economic activities or uses must contribute to achieving Refuge purposes and the Refuge System mission.

A refuge compatibility determination is the document that results from the analysis and public review conducted by the Service to find an activity or use compatible or not compatible with the purposes of a refuge. Compatibility determinations are not required for refuge management activities, except economic activities. They are also not required where statute directs mandatory approval of the activity, as in the case of facilities for national defense.

Arctic Refuge will follow normal administrative procedures for stopping an activity or use that is found to be incompatible. For example, the Refuge manager will not issue a special use permit for any new activity or use that is found to be incompatible. In the case of an existing activity or use already under permit, the Refuge manager will work with the permit holder to modify the activity or use to make it compatible or will terminate the permit.

Ending incompatible activities or uses on Refuge lands that do not require a special use permit or other formal authorization, or that cannot be addressed by other Federal or State agencies, will require the Refuge to go through the normal rulemaking process. This will include publishing the proposed regulations in the Federal Register and providing adequate opportunity for public comment.

Compatibility determinations for existing hunting, fishing, wildlife observation and photography, and environmental education and interpretation must be re-evaluated with the preparation or revision of a comprehensive conservation plan or at least every 15 years, whichever is earlier. Compatibility determinations for all other activities or uses on Refuge lands must be re-evaluated every 10 years or earlier if conditions change or new information about an activity or use and its effects becomes available.

Compatibility determinations prepared concurrently with comprehensive conservation plans or step-down management plans undergo public review and comment at the same time as the draft Plan and associated NEPA document (Service Manual 603 FW 2.11I). For compatibility determinations prepared separately from a Refuge plan, the Service will determine the appropriate level of public review and comment through a tiered approach based on the complexity and controversy of the use and the level of impact to the Refuge (Service Manual 603 FW 2.12A(9)). Additional details on applying compatibility standards and completing Refuge compatibility determinations are found in the compatibility regulations at 50 CFR (parts 25, 26, and 29) and in the Service Manual (603 FW 2).

Appendix G of this Plan contains the signed compatibility determinations for activities or uses on Arctic Refuge, and each includes a summary of the public comments received on the draft compatibility determinations. To review completed compatibility determinations for all refuges in Alaska, go to <http://alaska.fws.gov/nwr/planning/completed.htm>.

2.4.7 Mitigation

In the interest of serving the public, it is the policy of the Service, throughout the nation, to seek to prevent, reduce, or compensate for losses of fish, wildlife, and their habitats, and uses thereof, from land and water development. To that end, the Service developed a Mitigation Policy in 1981 that includes measures ranging from avoiding an activity that results in loss of such resources to seeking compensation by replacement of or substitution for resource loss.

The Service will promulgate regulations, develop stipulations, and issue permits to reduce or eliminate potential adverse impacts resulting from compatible activities that may be authorized under this Plan. These regulations, stipulations, and permits would mitigate impacts in a variety of means, as stipulated in the Mitigation Policy guidelines (Service Manual 501 FW 2.1). The means, in order of application, are as follows:

1. Avoid the impact altogether by not taking a certain action or parts of an action.
2. Minimize impacts by limiting the degree or magnitude of the action and its implementation.
3. Rectify the impact by repairing, rehabilitating, or restoring the affected environment.
4. Reduce or eliminate the impact over time by preservation and maintenance operations during the life of the action.
5. Compensate for the impact by replacing or providing substitute resources or environments.

The Service generally does not allow compensatory mitigation on Refuge System lands. Only in limited and exceptional circumstances related to existing rights-of-way could compensatory mitigation be used to find a use compatible. The Service Manual (501 FW 2 and 603 FW 2) provides more information.

Mitigation may consist of standard stipulations such as those attached to right-of-way permits; special stipulations that may be attached to leases or permits on a site-specific basis; and site- and project-specific mitigation identified through detailed step-down management plans or the environmental assessment process. In all instances, mitigation must support the mission of the Refuge System and must be compatible with the purposes of a refuge. The degree, type, and extent of mitigation undertaken would depend on the site-specific conditions present and the management goals and objectives of the action being implemented.

2.4.8 Coastal Zone Consistency

Federal lands, including lands in the Refuge System, are excluded from the coastal zone (16 U.S.C., Section 1453[1]). The Coastal Zone Management Act of 1972, as amended (P.L. 92-583), directs Federal agencies conducting activities in the coastal zone, or that may affect any land or water use or natural resources of the coastal zone, to conduct these activities in a manner that is consistent with approved State management plans to the maximum extent practicable (15 CFR 930.32). Federal regulations state that “(w)hen Federal agency standards are more restrictive than standards or requirements contained in the State’s management program, the Federal agency may continue to apply its stricter standards” (15 CFR 930.39[d]).

The Alaska Coastal Zone Management Act of 1977, as amended, and the subsequent Alaska Coastal Management Program, as amended, and the Final Environmental Impact Statement (1979) had established policy guidance and standards for the review of projects in or potentially affecting Alaska’s coastal zone. The State of Alaska had formerly approved coastal management plans for most incorporated cities, municipalities, boroughs, and unincorporated areas in the coastal zone. However, the Alaska Coastal Management Program was terminated on July 1, 2011 (AS 44.66.030). Therefore, a consistency evaluation with the State of Alaska was not necessary for Arctic Refuge’s Revised Plan.



2.4.9 Cooperation and Coordination with Others

2.4.9.1 Federal, State, and Local Governments

Arctic Refuge staff will continue to work closely with those Federal, State, and local governments and agencies whose programs affect, or are affected by, the Refuge. State and local government input will be sought during the development of regulatory policies addressing management of the Refuge System (Executive Order 13083, “Federalism”). When possible, the Service will participate in interagency activities (such as joint fish and wildlife surveys and co-funded research), cooperative agreements, sharing data, and sharing equipment and/or aircraft costs to meet mutual management goals and objectives. The Service is the final authority over management of Refuge lands and waters.

The Refuge and the State will maintain a cooperative relationship in managing fish and wildlife resources in the Refuge. The Master Memorandum of Understanding between the Service and ADFG, dated March 13, 1982, defines the cooperative management roles of each agency (Appendix B). In this agreement, the ADFG agreed to “recognize the Service as the agency with the responsibility to manage migratory birds, endangered species, and other species mandated by Federal law, and on Service lands in Alaska to conserve fish and wildlife and their habitats and regulate human use.” The State also agreed to “manage fish and resident wildlife populations in their natural species diversity on Service lands.” The Service agreed to “recognize the right of the ADFG as the agency with the primary responsibility to manage fish and resident wildlife within the State of Alaska.” Both agencies agreed “to recognize that the taking of fish and wildlife by hunting, trapping, or fishing on Service lands in Alaska is authorized in accordance with applicable State and Federal law unless State regulations are found to be incompatible with documented refuge goals, objectives, or management plans.” Further discussion of intergovernmental cooperation regarding the preservation, use, and management of fish and wildlife resources is found in 43 CFR 24, “Department of the Interior Fish and Wildlife Policy: State and Federal Relationships.”

The Service does not require compatibility determinations for State wildlife management activities on a national wildlife refuge pursuant to a cooperative agreement between the State and the Service where a Refuge manager has made a written determination that such activities support fulfilling Refuge purposes or the Refuge System mission. When the activity proposed by the State is not part of a cooperative agreement or the State is not acting as the Service’s agent, a special use permit may be required, and a compatibility determination will need to be completed before the activity may be allowed. If existing or proposed State fish and wildlife management does not conform to the goals, objectives, policies, and guidelines in the Revised Plan, the Service would find the use incompatible and would not allow the use on the Refuge.

Separate Refuge compatibility determinations will be required for specific State management activities that propose predator management, fish and wildlife control (with the exception of emergency removal of animals posing an immediate threat to human health and safety), reintroduction of species, non-native species management, pest management, disease prevention and control, fishery restoration, fishery enhancement, native fish introductions, non-native species introductions, construction of facilities, helicopter and off-road vehicle access, or any other un-permitted activity that could alter ecosystems on the Refuge.

The Service works closely with State and local air quality permitting authorities, the U.S. Environmental Protection Agency (EPA), and other agencies to ensure protection of air quality and air quality-related values on the Refuge. The Federal Land Managers’ Air Quality Related Values Workgroup Report (USFS et al. 2010) explains the authorities and the policy

and technical requirements of the Service in carrying out these duties. In an effort to responsibly expand domestic oil and gas production activities, on June 23, 2011, DOI, the Department of Agriculture, and EPA signed a Memorandum of Understanding that describes an interagency approach to address air quality issues associated with onshore oil and gas development on public lands. The memorandum establishes a common process for the agencies to follow for analyzing potential impacts to air quality and air quality-related values from proposed oil and gas activities on federally managed public lands. The framework in the memorandum is to be used during the NEPA process when making Federal oil and gas decisions and applies at the planning, leasing, or field development stages.

The Service will cooperate with other State agencies such as ADNR and the Department of Transportation and Public Facilities and with local governments on matters of mutual interest—and may enter into informal and formal management agreements.

2.4.9.2 Tribes and Native American Organizations

The United States has a unique legal and political relationship with American Indian and Alaska Native tribal governments as set forth in the Constitution of the United States, treaties, statutes, court decisions, Executive orders, and policies. In recognition of this relationship, the President issued Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments) on November 6, 2000, which provides guidelines to all Federal agencies for how to establish regular and meaningful consultations with tribal officials. In January 2001, DOI established the Alaska Policy on Government-to-Government relations. A Presidential Memorandum was signed in 2009, and the DOI Policy on Consultation with Indian Tribes was published in 2011. In August 2012, the DOI Policy on Consultation with Indian Tribes was supplemented with the requirement to consult with ANCSA corporations on actions or activities that may have a substantial direct effect on Alaska Native corporations, including corporation lands, waters, or resources. These policies reaffirm the Federal government's commitment to operate within a government-to-government relationship with Indian and Alaska Native peoples.

In 2011, the Federal Subsistence Board began addressing how meaningful government-to-government consultation can occur in the management of fish and wildlife and subsistence uses as envisioned by Congress. The Federal Subsistence Board recently approved an interim government-to-government consultation protocol and an interim government-to-Native corporation (i.e., ANCSA corporations) consultation protocol that will guide its efforts until final protocols are developed. In compliance with DOI Policy, the Service will consult with appropriate ANCSA corporations in the same way it consults with federally recognized tribes. ANCSA corporations include any Alaska Native village corporation, urban corporation, or regional corporation as defined in, or established pursuant to, the ANCSA.

Consultation will occur whenever a Federal action with tribal or Native corporation implications is proposed, including the decision making process for that action. An example of such an action is the preparation of a management plan for an area near tribal lands or a proposed change in the management of subsistence resources. In Alaska, formal consultation with tribes and Native corporations is necessary for successful Refuge management. Arctic Refuge will continue to communicate about ongoing and future research, monitoring, and management activities. The Refuge will work directly with neighboring ANCSA regional and village corporations, Native organizations, and the North Slope Borough regarding Alaska Native subsistence opportunities, interests, and cultural values that may be affected by Refuge programs, plans, or management actions.

2.4.9.3 Owners of Refuge Inholdings and Adjacent Lands

Arctic Refuge will work cooperatively with inholders and adjacent landowners, providing information on Refuge management activities and policies. The Refuge will consult periodically with them regarding topics of mutual interest, respond promptly to concerns over Refuge programs, and participate in cooperative projects (e.g., water quality monitoring, fish and wildlife management).

2.4.9.4 Service Jurisdiction over Waters in Arctic Refuge

Where the United States holds title to submerged lands beneath waters in the Refuge, the Service has jurisdiction over certain activities on the water. In 1980, under ANILCA, the United States Congress established or expanded 16 national wildlife refuges. These areas of land and water may contain both navigable and non-navigable waters. Where water bodies are non-navigable in the Refuge boundaries, the Service has management authority over most activities on water where adjacent uplands are federally owned. Where State of Alaska lands exist beneath navigable water bodies or where the State, a Native corporation, or a Native allottee owns the adjacent uplands inside the Refuge boundaries where the withdrawal process started after statehood, the Service's management authority is more limited.

The Service's statutory authority to manage these lands and waters comes from ANILCA; the Service manages these lands pursuant to the Refuge Administration Act. Under provisions of ANILCA, the Federal Subsistence Board manages fishing for federally qualified subsistence users on all inland waters with a Federal reserved water right within and adjacent to the external boundaries of the refuges (50 CFR 100.3(b)(c)). Fishing also occurs under State regulations throughout the Refuge. Submerged land ownership with Arctic Refuge is discussed in greater detail in Chapter 4, Section 4.1.2.8.

2.4.9.5 Cooperative Wildland Fire Management

The Service Region 7 (Alaska) has entered into a Master Cooperative Wildland Fire Management Agreement (Master Agreement) with:

- State of Alaska, Department of Natural Resources (ADNR)
- United States Department of Agriculture, Forest Service, Alaska Region (Region 10) (USFS)
- United States Department of the Interior (DOI), Bureau of Indian Affairs, Alaska Region (BIA)
- DOI, Bureau of Land Management, Alaska (BLM)
- DOI, Bureau of Land Management, Alaska Fire Service (BLM-AFS)
- DOI, National Park Service, Alaska Region (NPS)

The Master Agreement documents the commitment of those agencies to improve efficiency by facilitating the coordination and exchange of personnel, equipment, supplies, services, and funds in sustaining wildland fire management activities. This includes prevention, preparedness, communication and education, fuels treatment and hazard mitigation, fire planning, response strategies, tactics and alternatives, suppression, and post-fire rehabilitation and restoration. The Master Agreement is also the basis from which the DOI agencies implement DOI Manual 620 (620 DM) and for the USFS to implement Forest Service Manual 5100.

The Master Agreement incorporates the following statewide planning documents:

- The Alaska Statewide Annual Operating Plan addresses issues affecting statewide cooperation and fiscal obligations.
- The Alaska Interagency Wildland Fire Management Plan (AIWFMP) specifies direction for the response to wildland fires that is based on a management option designation, and it provides guidelines to jurisdictional and protection agencies for decision support requirements as the complexity of a wildland fire increases.
- The Alaska Interagency Mobilization Guide identifies policy and agreements that establish the standard procedures that guide the operations of multi-agency and/or multi-jurisdictional logistical support activities. The guide is intended to promote uniformity of logistical support communications, facilitate interagency dispatch coordination, and ensure that the most timely and cost-effective support services are provided.

Individual agency policies and requirements are not superseded by the Master Agreement, the Alaska Statewide Annual Operating Plan, or the AIWFMP. These documents are meant to be used in conjunction with unit-specific fire management plans that reference and cite agency and unit fire management policies, address the unit's enabling legislation and purpose, include a summary of the important resources and values of the unit, and identify, in broad programmatic terms, the direction found in the land and resource management plans, such as goals, objectives, standards, guidelines, and/or desired future conditions as they pertain to fire management.

2.4.9.6 Other Constituencies

Arctic Refuge will inform local communities, special interest groups, and others who have expressed an interest in or are affected by Refuge programs about Refuge management policies and activities. Refuge management will also consider the interests of its large nonlocal and non-visiting constituency when making decisions. The Refuge will seek input from these constituents when issues of local or national interest arise that may affect how the Refuge is managed. When appropriate, local residents and other stakeholders will be asked to participate in Refuge activities so their expertise and knowledge can be incorporated into Refuge management.

2.4.10 Ecosystem and Landscape Management

Species do not function alone; they function together in the environment as part of an ecosystem. Resources on Refuge lands will be managed by employing ecosystem management concepts. Individual species are viewed as integral to the diversity of those ecosystems and, as such, are indicators of the healthy functioning of the entire ecosystem. When the Service identifies species to use as indicators of the health of an ecosystem, it will do so through a rigorous peer-reviewed scientific process involving experts from other Federal agencies, ADFG, and others.

Refuges shall inventory, monitor, and maintain a comprehensive database of information on ecosystem components to help make effective management decisions and ensure proper long-term ecosystem stewardship. This includes regular and recurring monitoring of status and trends of ecosystem components such as fish, wildlife, plants, climatic conditions, soils, and water bodies. All monitoring will employ appropriate disciplines, new technologies, and scientific capabilities whenever practical.

2.4.10.1 Climate Change

Secretarial Orders 3226 (2001) and 3289 (2010), which apply to comprehensive conservation plans, require climate change impacts be considered and analyzed when planning or making decisions in the DOI. Because the arctic region is particularly vulnerable to the effects of climate change, this mandate is especially relevant to Arctic Refuge.

While the Refuge's purposes and goals call for conservation of fish, wildlife, plants, and their habitats in their natural diversity, this may not be possible for some species and ecosystems in the future if the meaning of "conservation" and "natural diversity" continues to be understood in the context of relatively fixed historic ecosystems and species assemblages. There are many unknowns regarding the potential effects of climate change. The Refuge will monitor climate change and its ecological effects and evaluate future scenarios for climate change effects on wildlife and ecosystems, placing emphasis on species that are threatened, endangered, or important for subsistence.

Refuge managers will investigate and consider a full range of responses to potential climate change impacts. For the foreseeable future, however, Refuge managers will generally adopt a non-intervention approach to climate change and will avoid actions aimed at resisting the effects of climate change on wildlife and ecosystems, subject to human safety and management emergencies (see Section 2.4.2). Managers will strive to allow natural systems to adapt and evolve in response to changing climatic conditions (see Chapter 2, Section 2.1.6, Objective 6.4), accepting that some species may be replaced by others more suited to the changing climate.

As the implications of climate change become better understood, the Service may need to reassess some assumptions underlying the Refuge's purposes. For example, the Service may need to reexamine the meaning of fundamental concepts such as "conserve," "preserve," and "natural diversity," and revise goals and objectives accordingly.

2.4.10.2 Air Quality

The Service's authorities for air quality management and protection are direct mandates of the Clean Air Act and the Wilderness Act. The Wilderness Act requires the Service to protect and preserve the Wilderness character of designated areas, which includes biophysical conditions such as clean air.

The Service is required by the Clean Air Act to preserve, protect, and enhance air quality and the values related to air quality on Service lands, including visibility, plants, animals, soil, water quality, cultural and historical resources, and virtually all resources that are dependent upon and affected by air quality. Air pollutants of concern include mercury and other hazardous air pollutant compounds as well as six Clean Air Act "criteria pollutants:" nitrogen dioxide, sulfur dioxide, carbon monoxide, lead, ozone, and particulate matter. The approach Federal land management agencies, including the Service, take in evaluating air pollution effects is described in detail in the Federal Land Manager's Air Quality Related Values Work Group report (USFS et al. 2010).

Refuge managers are responsible for identifying air pollution threats to designated Wilderness and other resources; identifying air quality-related values; and determining monitoring needs for the refuge unit. The Service's Branch of Air Quality, in the Division of Refuges, is responsible for overall leadership and coordination of the air quality management

program and for conducting technical and policy work in coordination with and on behalf of refuge managers (Service Manual 563 FW1).

The Clean Air Act Amendments of 1977 initially classified international parks, national parks (greater than 6,000 acres), national memorial parks (greater than 5,000 acres), and national Wilderness areas (greater than 5,000 acres) as 'Class I' areas; all other protected lands, as well as newly protected areas, were given a 'Class II' designation. Class I areas receive the highest degree of air quality protection under the Clean Air Act.

The Wilderness area in Arctic Refuge was established after the 1977 Clean Air Act Amendments, and was therefore designated as a Class II Wilderness. National wildlife refuges and designated Wilderness areas (greater than 10,000 acres) can be redesignated as Class I by the State as it deems appropriate (Section 164, Clean Air Act, as amended by Public Law 108-201). While certain authorities under the Clean Air Act only apply to Class I areas, Federal land managers are mandated to protect Class II air resources as well. In addition to limits on allowed increases in air pollutant concentrations in clean areas (i.e., Class I and Class II "Increments" under the Clean Air Act's Prevention of Significant Deterioration program), no area is allowed to violate any of the National Ambient Air Quality Standards (40 CFR Part 50). EPA, in partnership with State and local air regulatory agencies, is responsible for implementing these air quality standards.

There are current potential risks to the air quality and related resources in Arctic Refuge. The Refuge manager is working with the Service's Branch of Air Quality to appropriately assess these risks. In addition, the Refuge manager will continue to work with the Branch of Air Quality by participating in regulatory project reviews, environmental evaluations such as NEPA, and other air permitting programs. The Refuge manager will also work with the Service's Air Quality Branch; the Alaska Department of Environmental Conservation; other State, local, and Federal agencies; and the public, as appropriate, in addressing air quality concerns for Arctic Refuge, consistent with the Service's Air Quality Protection Policy (563 FW 1).

2.4.10.3 Water Resources Management

Every national wildlife refuge in Alaska shares the common ANILCA purpose and mandate to ensure, to the maximum extent practicable and in a manner consistent with conservation of fish and wildlife populations in their natural diversity, water quality and necessary water quantity within the Refuge (ANILCA Section 303(2)(B)).

Although the Service has reserved water rights to accomplish the purposes of the Refuge, the Refuge Administration Act and the Service Manual (403 FW 1 through 3) direct the Service to obtain, to the extent practicable, water supplies of adequate quantity and quality for Service facilities, for Refuge purposes, and as trust resources, and to obtain the legal right to use that water through State laws, regulations, and procedures.

The Alaska Region of the Service conducted a water resources threats analysis (Harle 1994) for the purpose of guiding water resource investigations and protecting water resources by acquiring instream water rights. Based on the results of the threats analysis, the Service's regional office developed a strategic plan for systematically quantifying the surface water on refuges in Alaska (Bayha et al. 1997).



Using existing data, or through the collection of hydrologic and biologic data, the Service applies to the State for appropriative water rights, for instream water reservations, and for water withdrawals to meet the Service's needs. Establishing State water rights is only part of a management strategy to protect resources on Refuge lands and to understand ecosystem processes. Hydrologic data allows the Service to: plan floodplain and riparian zone management, estimate flow for ungauged streams, supplement historical or current fisheries and wildlife studies, detect and evaluate naturally occurring or human-induced changes in the hydrologic system, provide stream profile and velocity data for the design of fish weirs or other structures, analyze the impacts of proposed projects on stream flow and water supply, provide a basis for decisions, and provide baseline water quality information. All facilities and activities on refuges must comply with pollution control standards set by Federal laws (e.g., the Clean Water Act 33 U.S.C. 1251 and the Safe Drinking Water Act 42 U.S.C. 300f); State laws where Federal law so provides; and the regulations, policies, and standards implementing these laws.

2.4.10.4 Visual Resource Management

Visual resource management has two primary purposes: (1) to manage the quality of the visual environment, and (2) to reduce the visual impact of management activities and temporary or permanent facilities. To accomplish these purposes, Arctic Refuge will identify and maintain scenic values and will, within the constraints imposed by this Plan, minimize the visual impacts of Refuge management activities and administrative uses. To the extent practicable, the Refuge will design all activities and facilities on Refuge lands to blend in with the immediately surrounding landscape. The Service will cooperate with other Federal, State, local, tribal, and private agencies and organizations to minimize deterioration of visual resources from activities occurring off Refuge lands and on public and private lands inside Refuge boundaries. These activities can include oil and gas development, both on and offshore, that could potentially deteriorate air quality and visibility in Arctic Refuge.

2.4.10.5 Cultural, Historical, and Paleontological Resources

The Service has long-term responsibilities for cultural resources on Refuge lands. Cultural resources on Refuge lands are managed under a number of laws, Executive orders, and regulations, including the Antiquities Act; the National Historic Preservation Act, as amended; the Archaeological Resources Protection Act; the American Indian Religious Freedom Act; the Native American Graves Protection and Repatriation Act; Executive Order 11593, “Protection and Enhancement of the Cultural Environment”; Executive Order 13007, “Indian Sacred Sites”; the Paleontological Resources Protection Act (Subtitle D); and 36 CFR 800.

The 1980 amendments to the National Historic Preservation Act direct the Service to inventory and evaluate cultural resources for their eligibility for inclusion on the National Register of Historic Places. Pending a complete evaluation, all cultural resources will be considered eligible for the National Register of Historic Places and be protected and managed in accordance with Federal and State laws. All paleontological resources on Arctic Refuge will be protected and managed in accordance with Federal law.

It is illegal to collect archaeological materials and/or paleontological remains on Arctic Refuge without a permit. Historic aircraft will be managed in accordance with the policy published December 20, 1985, in the Federal Register (50 FR 51952). These materials may be collected on Refuge lands only as authorized by a permit issued to a qualified organization or individual. Cultural resource research permits will only be issued to qualified individuals operating under appropriate research designs and with access to appropriate curatorial facilities. Arctic Refuge will encourage archaeologists, historians, ethnologists, and paleontologists from educational institutions and other government agencies to pursue research on Refuge lands as long as their research interests are compatible with Refuge purposes. The Refuge will encourage research that collects data from threatened sites or sites that are important to local communities; researchers will be required to minimize disturbance of intact sites.

The Service must initiate a consultation with the State Historic Preservation Officer, under Section 106 of the National Historic Preservation Act, before it plans to fund, authorize, or otherwise undertake any Federal action that has the potential to directly or indirectly affect any archaeological or historic site. If sites that may be affected are found in the project area, their significance will be evaluated to determine their eligibility for inclusion in the National Register of Historic Places. For eligible sites, consultation will result in a course of action causing the least possible impact. Impacts may be minimized in a variety of ways, including relocation or redesign of a project, site hardening, mitigation through information collection, or cancellation of the project if no alternatives are feasible. Other activities or uses may be precluded to protect archaeological and historic sites. Private interests proposing to conduct commercial activities or uses on Arctic Refuge will normally be required to fund studies necessary for consultation and for mitigation of impacts.

The Refuge will implement Executive Order 13007, “Indian Sacred Sites,” allowing access to identified sacred sites and avoiding adversely affecting the physical integrity of these sites. Where appropriate, the Service will maintain the confidentiality of sacred sites.

Further information on cultural resources management can be found in the Service Manual (614 FW 1 through 5) and the Cultural Resources Handbook (Service 1992).

2.4.11 Fish and Wildlife Habitat Management

2.4.11.1 Habitat Management

Habitats are managed in keeping with the purposes, goals, and objectives of a refuge. For Arctic Refuge, habitat management seeks to sustain the highest degree of natural biological diversity, integrity, and environmental health. The intent of management will be to leave habitats unaltered and unmanipulated. Natural habitats will not be modified or improved to favor one species over another. Except as necessary to protect threatened and endangered species or to meet other management emergencies, management will focus on perpetuating the distinctive qualities of natural condition and wild character.

2.4.11.2 Fire Management

Wildland fire is a general term describing any non-structure fire that occurs in the wildland. Wildland fires are categorized into two distinct types:

- Wildfires – Unplanned ignitions (wildland fires started by lightning, volcanoes, or unauthorized human activity) or prescribed fires that are declared wildfires.
- Prescribed Fires - Planned ignitions designed to meet specific management objectives. Prior to ignition, a written and approved prescribed fire plan must exist, and NEPA requirements (where applicable) must be met. Use of prescribed fires must comply with the Alaska Enhanced Smoke Management Plan for Prescribed Fire.

Response to wildland fires is the mobilization of the necessary services and responders to a fire based on ecological, social, and legal consequences, the circumstances under which a fire occurs, and the likely consequences on firefighters, public safety and welfare, natural and cultural resources, and values to be protected. A wildland fire may be concurrently managed to meet Refuge purposes for one or more objectives, and objectives may change as the fire spreads across the landscape. Objectives are affected by changes in fuels, weather, topography; varying social understanding and tolerance; and involvement of other governmental jurisdictions having different missions and objectives. Depending on objectives, valid responses to wildfires on Arctic Refuge include:

- Fire Suppression - the work of extinguishing or confining a fire or a portion of a fire, beginning with its discovery, to protect, prevent, or reduce the loss of identified values. The BLM-AFS Upper Yukon Fire Management Zone provides emergency suppression services on Arctic Refuge under the direction of the Refuge Manager. The highest priority of all suppression actions is ensuring the safety of firefighters and the public.
- Use of Wildland Fire - management of either wildfire or prescribed fire to meet resource objectives specified in this Revised Plan and Fire Management Plan (FMP). Wildfires or portions of fires may remain unsuppressed in order to protect and maintain the ecological integrity of Refuge lands.

Wildland fire will be managed on Arctic Refuge in a manner that, as nearly as possible, allows it to function in its ecological role. All fire management decisions will give consideration to the protection of human life and values identified by neighboring landowners, including Native allotments. Management of fires occurring in designated Wilderness will comply with national and regional policies and will take Wilderness character and values into consideration.

The Service will evaluate and may conduct the full range of activities necessary to protect human life, property, cultural resources, and other identified values, as well as any activities

necessary to conserve and protect habitats for the benefit of fish and wildlife. These activities include the use of unplanned and prescribed wildland fires to meet resource objectives, as well as suppression actions when appropriate. Hazardous fuels reduction may be accomplished through prescribed fire, and in some cases through mechanical and other types of treatments. Prescribed fire will not be used on Arctic Refuge for habitat enhancement or restoration. Monitoring, research, fire prevention, preparedness, education, and outreach are also important components of the Refuge fire management program. All activities will be conducted in accordance with Refuge, Service, and DOI policies and approved interagency policy and plans.

The Refuge's FMP identifies and integrates these wildland fire management and related activities in the context of this Revised Plan. It defines a program to manage wildland fires (wildfire and prescribed fire) on the Refuge. The plan is supplemented by operational plans, including prescribed fire burn plans, treatment plans, and prevention plans.

The Refuge FMP is designed to work in concert with the Alaska Interagency Wildland Fire Management Plan (AIWFMP) that was revised March 2010, which specifies direction for initial action and response to wildfires. The AIWFMP establishes four management options—critical, full, modified, and limited—used to direct a range of responses to wildland fire. Refuge lands and facilities have been classified and mapped using these fire management options, which are reviewed annually and revised as necessary. The strategies and tactics used by the Service to manage a wildland fire will be based on objectives identified in the AIWFMP, the Refuge FMP, and the Revised Plan for Arctic Refuge.

2.4.12 Fish and Wildlife Population Management

The Service and the State of Alaska each have directives affecting fish, wildlife, and land management and will work cooperatively to fulfill these responsibilities. On national wildlife refuges, fish and wildlife are managed to meet a refuge's purposes and to fulfill the mission of the Refuge System, and in accordance with the Biological Integrity, Diversity, and Environmental Health Policy.

For Arctic Refuge, ANILCA specified that fish and wildlife populations and their habitats shall be conserved in their natural diversity Refuge-wide. For those portions of the Refuge that were part of the Arctic National Wildlife Range, the 1960 establishing order to preserve unique wildlife and wilderness values also applies to the extent it is not inconsistent with ANILCA purposes. To satisfy these purposes, and subject to management emergencies (Section 2.4.2), the Refuge will focus on enabling the natural behavior, interactions, and cycles of all native species to continue with minimal or no human intervention. The Service's Biological Integrity, Diversity, and Environmental Health Policy supports this approach by mandating maintenance of the variety of life and its processes on Refuge lands (Service Manual 601 FW 3). For the designated Wilderness area, the purposes of the Wilderness Act are within and supplemental to Refuge purposes. The Refuge will maintain Wilderness character in designated Wilderness, subject to the exceptions found in ANILCA.

In the Refuge System, Arctic Refuge exemplifies ecological integrity, biological diversity, and healthy environmental conditions. Arctic Refuge will continue to work with the State of Alaska and other partners to maintain native species diversity and the free-functioning ecological systems and dynamic processes on which that diversity depends to the greatest extent possible.

2.4.12.1 Ecological Inventory and Monitoring Plan

Arctic Refuge has completed a draft Ecological Inventory and Monitoring Plan (I&M Plan) and plans to update the document in the next two years. The I&M Plan will serve as a guide to assess species presence, relative abundance, distribution, and trends in populations of fish, wildlife, and plants. The I&M Plan describes goals, objectives, methods, implications of management, geographic scales, schedules for reporting, and database management for inventory and monitoring studies. The I&M Plan recommends monitoring to address environmental parameters (e.g., weather) and hydrology, soils, and fire history to explain potential changes in the distribution, relative abundance, and populations of fish, wildlife, and plants. Arctic Refuge will review the I&M Plan every two years and update it as needed, and the Service's regional office will review each refuge's I&M Plan every 5–8 years. In fiscal year 2010, the Refuge System received funding to initiate a national I&M program. As this program is developed, the Arctic I&M Plan may be modified to allow information integration and flow at multiple scales from the Refuge to the national level.

2.4.12.2 Scientific Peer Review

Anthropologists, biologists, botanists, ecologists, social scientists, and other Refuge personnel conducting scientific investigations will adhere to Refuge, regional, Service, and DOI policies on scientific conduct, including the publication entitled *Management of Fish and Wildlife Service Scientific Publications Recommended Outlets, Procedures, and Policies*. The overall goal of scientific peer review is to ensure that information collected, analyzed, interpreted, and reported to the public, and upon which policy and management decisions may be based, meets established standards of the scientific community. To achieve this goal, all study plans and reports to be disseminated outside the originating office must be peer reviewed. The region's peer review procedure is available upon request. The type and level of review shall be commensurate with the potential significance of the scientific information and its likely influence on policy and management actions. The Service has two peer-reviewed outlets, *North American Fauna* and *Journal of Fish and Wildlife Management*, which accept manuscripts for publication. Service employees also publish reports and articles of scientific findings in non-Service peer-reviewed journals.

2.4.12.3 Compliance with the Animal Welfare Act

The Animal Welfare Act of 1996, as amended, requires research facilities and Federal agencies to establish an Institutional Animal Care and Use Committee. The role of this committee is to prescribe methods and set standards for the design, performance, and conduct of animal care and use in research. Field studies conducted or authorized by Refuge employees within the purview of the Animal Welfare Act will require review and approval of an Institutional Animal Care and Use Committee. Any Refuge study that involves an invasive procedure or that harms or materially alters the behavior of an animal under study will be reviewed and approved by an Institutional Animal Care and Use Committee prior to implementation. A scientific collection permit is also required from the ADFG under Alaska Administrative Code 5 AAC 92.033.

2.4.12.4 Marking and Banding

The Service will place a priority on cooperating with appropriate partners, including ADFG and their permitting process, when we conduct fish and wildlife capture, marking, banding, radio-collaring, release, tracking, and other information gathering techniques involved with research on Refuge lands. The Service will follow approved protocols and published guidelines during all marking, banding, and related wildlife research and monitoring activities and will draw upon current insights from appropriate scientific disciplines and technologies. As with other management actions, an MRA must be conducted in advance of marking or banding wildlife in designated Wilderness.

2.4.12.5 Threatened or Endangered Species

The Refuge will consult with the Service Ecological Services field office regarding actions that may affect listed, proposed, or candidate species or designated or proposed critical habitat. These actions include Refuge operations, public use programs, private lands and Federal assistance activities, promulgating regulations, and issuing permits (Service and National Marine Fisheries Service 1998).



2.4.12.6 Reintroductions

A species may be introduced on a refuge only if that species is native to that refuge but has been extirpated (i.e., a reintroduction). Non-native species may not be introduced. Definitions of native and non-native species are found in the glossary (Appendix M). Currently there are no species identified for potential reintroduction to the Refuge.

Reintroductions can be useful tools for restoring species to natural ranges and reestablishing natural levels of fish, wildlife, and habitat diversity. Reintroductions would require appropriate NEPA compliance; a review to ensure consistency with the Service's policy on maintaining biological integrity, diversity, and environmental health of the Refuge System (Service Manual 601 FW 3); and an ANILCA Section 810 determination. If the Service was not a partner in the reintroduction, a Refuge compatibility determination would be required. Reintroductions also require extensive coordination with adjacent landowners and with the State. In evaluating the project, the cause(s) of the extirpation shall be evaluated and management actions taken to alleviate the cause(s) prior to reintroduction.

The environmental requirements of the species and the ecological dynamics of the area proposed for the reintroduction will be thoroughly reviewed prior to a reintroduction. Some factors to consider include behavior, diseases, general ecology of the species, habitat requirements, inter- and intra-species competition, life history, genetics, management practices, population dynamics, and predators. The Service shall consider whether there have been noteworthy habitat changes since the species' extirpation (e.g., is the area still in the species' natural range).

2.4.12.7 Fish and Wildlife Control

On Arctic Refuge, all native species are integral and interdependent members of a natural community of life. Management will strive to enable the natural behavior, interactions, and population dynamics of all species to continue. Except in emergencies (see Section 2.4.2), the Refuge will not employ or allow any management technique intended to interfere with natural wildlife dynamics by reducing the abundance of some species to increase the abundance of others.

If determined necessary under subsection 2.4.2 (Human Safety and Management Emergencies), Service or State actions involving the killing, relocation, removal, or sterilization of wildlife for the benefit of another species would require appropriate NEPA compliance and an ANILCA Section 810 determination. If conducted by other than the Service or an agent of the Service, a Refuge compatibility determination would be required. Alternative management actions would need to be evaluated prior to pursuing intensive management activities.

Any proposal to allow or implement a fish and wildlife control activity would also be subjected to public review and done in coordination with the ADFG, local communities, tribal governments, ANCSA Native corporations, and adjacent landowners and/or land managers. If allowed, fish and wildlife control activities will be monitored and evaluated for effectiveness and resource impacts. This section applies only to native species; control or elimination of non-native species would be considered without being considered a management emergency.

2.4.12.8 Management of Non-native, Invasive, and Pest Species

When a non-native species (fish, wildlife, or plant) occurs on a refuge, the Service may control or eliminate that species. However, where a population of a non-native species has already been established on a refuge and this population does not materially interfere with nor detract from the fulfillment of the mission of the Refuge System or the purposes a refuge, the species may be managed as part of the refuge environment.

In general, the presence of non-native species on Arctic Refuge is not consistent with Refuge purposes or with Refuge System policies. Species that occur naturally in areas adjacent to the Refuge and move into the Refuge as a result of climate change and its effects on habitat conditions represent a special case. If the presence of these species do not materially interfere with nor detract from the fulfillment of the mission of the Refuge System or the purposes of Arctic Refuge, and they do not constitute a management emergency such as to threatened or endangered species (see Section 2.4.2), they will be managed as part of the Refuge environment.

Invasive species are non-native species that, when introduced, have the potential to cause substantial amounts of harm to the environment, human health, or economic well-being. The Federal government is prohibited by Executive order, law, and policy from authorizing, funding, or carrying out actions that are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere (Service Manual 620 FW 1). Refuge managers may conduct habitat management activities to prevent, control, or eradicate invasive species using techniques described through an integrated pest management plan or other similar management plans. Integrated pest management planning for Refuge lands will address the advantages and limitations of control techniques, including chemical, biological, mechanical, and cultural. Management of invasive species on refuges is guided by the National Strategy for Invasive Species Management and is conducted in the context of applicable policy (Service Manual 620 FW 1).

Invasive species can greatly affect land and water resources or plants and animals that use invaded habitats. Therefore, invasive species may interfere with the Refuge's ability to meet its purposes and management goals and may cause harm to threatened or endangered species, natural diversity, or subsistence resources. To manage invasive plants, the Refuge will include weed inventories as part of all habitat inventories. If invasive plants are detected, control measures will be considered. The Refuge will review proposed actions for their potential to introduce or spread invasive plants and will take measures to reduce the risk of spreading invasive plants (e.g., require pelletized weed-free feed for pack animals and prohibit straw and hay bedding for dogs).

Invasive vertebrates may also adversely affect wildlife populations. If invasive vertebrates are detected, control measures will be considered. Climate change may enhance the vulnerability of the Refuge to invasive species, requiring heightened surveillance and potentially aggressive control measures in the future.

Pests are those organisms (vertebrates, invertebrates, plants, and microorganisms and their vectors) that are detrimental to fish, wildlife, human health, fish and wildlife habitat, or established management goals. Pests may be native or non-native and could include invasive plants and other organisms, which are classified as pests (Service Manual 569 FW 1). Climate change may enhance the spread of pests or the vulnerability of their hosts. The Refuge may or may not take actions to resist native pests, subject to our climate change and management emergencies guidelines (see Sections 2.4.2 and 2.4.10.1). Pests on refuges may be controlled to prevent damage to private property. Routine protection against pests for Refuge buildings,

structures, and facilities is addressed in Refuge policy (Refuge Manual 9 RM 2 Exhibit 1). Arctic Refuge will coordinate with other landowners and agencies and use integrated pest management practices to enhance the detection, prevention, and management of invasive species and other pests, when appropriate. Use of chemical control measures on refuge lands in Alaska requires NEPA compliance, regional office review, and approval of a pesticide use proposal (Integrated Pest Management Policy 569 FW 1).

2.4.12.9 Disease Prevention and Control

Certain disease organisms, viruses, or vectors of disease (e.g., rabies or parasites) may threaten human health or the health and survival of native wildlife or plant species. These threats may be managed or eliminated after consideration of all reasonable options and consultation with the State and other concerned parties. This will normally only occur when severe resource damage is likely (for example, when harm to threatened or endangered species, natural diversity, or subsistence resources is likely) or when public health or safety is jeopardized. Climate change may create conditions more conducive to introduction or spread of disease organisms and their vectors.

Service Manual 701 FW 7 and Refuge Manual 7 RM 17 contain the Service's policies and procedures concerning disease control and prevention. Additionally, the Service's Aquatic Animal Health Policy (713 FW 1-5) describes standards and procedures for the containment and control of aquatic animal pathogens and diseases on Service-managed lands.

Dall's sheep in Alaska, including Arctic Refuge, are free of domestic livestock diseases and are believed to have very low immunity to many of these diseases. In particular, domestic sheep, goats, and camelids (e.g., llamas and alpacas) are recognized as being at high risk for carrying disease organisms, often asymptotically, that are highly contagious and cause severe illness or death in Dall's sheep (Garde et al. 2005). Therefore, domestic sheep, goats, and camelids are not allowed on Arctic Refuge. This restriction is subject to promulgation of regulations for non-commercial uses.

2.4.12.10 Fishery Restoration and Enhancement

Fish populations and their habitats will be conserved in their natural diversity, with natural population cycles, interactions, and seasonal movements uncontrolled. Currently, fish populations and cycles are believed to be within their normal range of variability and continue to respond to natural processes and landscapes that are substantially free of direct human-caused changes. The Refuge will favor maintaining undisturbed habitat conditions and monitoring populations and harvest of fish. Actions that are needed to restore an aquatic ecosystem back to health, including restoration of fish populations to historic levels, may be allowed, and fishery restoration facilities may be authorized. Fishery restoration projects proposed under the auspices of subsection 2.4.2 (Human Safety and Management Emergencies) would be subject to the provisions of NEPA, an ANILCA Section 810 determination, and a compatibility determination.

Fishery enhancement (i.e., activities applied to a fish stock to supplement numbers of harvestable fish to a level beyond what could be naturally produced based upon a determination or reasonable estimate of historic levels) is inconsistent with the Refuge's

purpose to conserve fish and wildlife populations and habitats in their natural diversity and is not allowed in Wilderness, Wild River, and Minimal Management categories.

2.4.13 Subsistence Management

Providing the opportunity for continued subsistence uses by local residents is one of the purposes of Arctic Refuge, as stated in Title III of ANILCA. Title VIII of ANILCA further provides that rural Alaska residents who are engaged in a subsistence way of life be allowed the opportunity to continue using resources in refuges for traditional purposes. These resources include fish and wildlife, house logs and firewood, and other plant materials. Many aspects of subsistence management are addressed outside refuge comprehensive conservation plans. The Federal Subsistence Board, through its rulemaking process, addresses seasons, harvest methods, harvest limits, and customary and traditional use determinations. The Federal Subsistence Board has established Subsistence Regional Advisory Councils to provide meaningful public input to the rulemaking process.

The Refuge will work with its partners to monitor subsistence harvests. The Refuge will supplement the State's ongoing harvest and resource monitoring programs to provide additional information on the status of fish and wildlife populations harvested for subsistence. This monitoring is intended to identify potential problems before populations of fish and wildlife become depleted and to ensure preference is given to subsistence users as required by law. In consultation with local communities, information the Refuge gathers through subsistence monitoring will potentially be shared with the Office of Subsistence Management; Subsistence Regional Advisory Councils and local State fish and game advisory committees; tribes; and others. Refuge staff will attend various subsistence-related meetings, including those of Subsistence Regional Advisory Councils and local State fish and game advisory committees and provide information on the status of subsistence resources and management.



The non-commercial gathering by local rural residents of fruits, berries, mushrooms, and other plant materials for subsistence and of dead standing or down timber for firewood is allowed without a special use permit. Harvest of live standing timber for house logs, firewood, or other activities or uses is allowed, although specific requirements vary by size and location. A special use permit is required to cut live trees greater than six inches diameter at breast height (4½ feet above ground level). No more than 20 live trees between three and six inches diameter at breast height (dbh) can be cut annually without a special use permit. No cutting may be done within 50 feet of a stream, lake, or river; no more than one tree in five may be cut in any specific stand. Cutting live trees less than three inches dbh does not require a special use permit. Timber stocks subject to subsistence activities or uses will be monitored to ensure they remain available over the long term.

Under Section 816 of ANILCA, Refuge lands may be closed to the taking of fish and wildlife if closure is deemed necessary for reasons of public safety, administration, or to ensure the continued viability of particular populations of fish or wildlife. Emergency closure to subsistence taking would be accomplished by the Federal Subsistence Board or its designated officials and would generally occur only after other consumptive activities or uses competing for resources were restricted.

2.4.13.1 Access for Subsistence Purposes

Access to Refuge lands and waters for subsistence uses will be allowed in accordance with Section 811 of ANILCA, subject to reasonable regulation (50 CFR 36.12). Regulations at 50 CFR 36.12(a) allow "... the use of snowmobiles, motorboats, dog teams and other means of surface transportation traditionally employed by local rural residents engaged in subsistence uses ..." Regulations at 50 CFR 36.12(d) state that these means of access "... shall be operated in compliance with applicable State and Federal law, in such a manner as to prevent waste or damage to the refuge, and in such a manner as to prevent the herding, harassment, hazing or driving of wildlife for hunting or other purposes."

2.4.13.2 Section 810 Evaluations

The Refuge will evaluate the effects of proposed activities on subsistence activities or uses to ensure compliance with Section 810 of ANILCA. The Refuge will work with the Federal Subsistence Board, Subsistence Regional Advisory Councils, local fish and game advisory committees, tribes, Native corporations, the ADFG, and other appropriate local sources to determine whether a proposed activity would "significantly restrict" subsistence activities or uses. If the Refuge determines that a proposal would probably result in adverse effects to subsistence activities or uses, the Refuge will follow the requirements identified in Section 810 before making a final decision on the proposal.

2.4.14 Public Access and Transportation Management**2.4.14.1 Snowmobiles, Motorboats, Airplanes, and Non-Motorized Surface Transportation**

Section 1110(a) of ANILCA allows the use of motorboats, airplanes, snowmobiles (also referred to as snowmachines), and non-motorized surface transportation methods for traditional activities and for travel to and from villages and home sites. Such access shall be subject to reasonable regulations to protect the natural and other values of Arctic Refuge (43 CFR 36.11). Specific areas may be closed to such activities or uses in accordance with these regulations if notice is given and a hearing is held in the vicinity of the area affected. The Refuge manager is responsible for determining when snow cover is adequate to protect the underlying vegetation and soil from damage by snowmobile use. Snowmobiles are only allowed during periods of adequate snow cover and frozen river conditions.

2.4.14.2 Off-Road Vehicles

The regulations at 43 CFR 36.11(g) prohibit the use of off-road vehicles in the Refuge except on routes or areas designated in accordance with Executive Order 11644 or pursuant to a valid special use permit. The definition of off-road vehicles in 50 CFR 36.2 excludes snowmobiles but includes air boats and air-cushion vehicles, along with motorized wheeled vehicles. Off-road vehicles such as all-terrain vehicles (e.g., three- and four-wheeled vehicles) may be authorized only on designated routes or areas and only in Intensive and Moderate Management or by special use permit.

2.4.14.3 Helicopters

The use of a helicopter is prohibited in any area other than at designated landing areas pursuant to the terms and conditions of a permit issued by the Service, or pursuant to a memorandum of understanding between the Service and another party, or involved in emergency or search and rescue operations (43 CFR 36.11(f)(4)). There are no designated landing areas on Arctic Refuge nor are any planned.

Helicopter landings for fisheries and wildlife management activities and scientific research may be authorized under special use permit or other authorization, subject to site-specific stipulations. Helicopter landings for fire operations must comply with the fire management plan for Arctic Refuge and operational guidance in the AIWFMP. Helicopter landings for routine law enforcement patrols are not allowed in designated Wilderness. The Refuge will work with State and Federal law enforcement officials to clarify the difference between use of helicopters for routine patrol and exigent circumstances (where there is probable cause of a violation having been committed) where the landing of helicopters is allowed.

In designated Wilderness, helicopter landings by the Service will not be permitted, except in cases of emergency, unless determined to be necessary through the Minimum Requirement Analysis process.

Helicopter landings for recreational purposes are not allowed in Arctic Refuge.

2.4.14.4 Access to Inholdings

Section 1110(b) of ANILCA ensures adequate and feasible access, for economic or other purposes, across a refuge for any person or entity that has a valid inholding. An inholding is defined as State-owned or privately-owned land, including subsurface rights underlying public lands, valid mining claims, or other valid occupancy that is in or effectively surrounded by one or more conservation system units. The Service will review and process the application in accordance with regulations at 43 CFR 36 and 50 CFR 29, when a right-of-way permit is necessary under this provision (e.g., construction of a permanent facility). Such permits are subject to terms and conditions as specified in the regulations.

2.4.14.5 Temporary Access

Chapter 43 CFR 36.12(a)(2) defines temporary access as “limited, short-term (i.e., up to one year from issuance of the permit) access which does not require permanent facilities for access to State or private lands.” Temporary access is limited to survey, geophysical, exploratory, or other temporary activities or uses on non-Federal lands and where access is not otherwise provided in 43 CFR 36.10 or 43 CFR 36.11.

The Refuge will evaluate applications for temporary access across the Refuge and may issue permits with necessary stipulations and conditions to ensure that access granted is compatible with the purposes for which the Refuge was established, complies with the provisions of Section 810 of ANILCA, and ensures that no permanent harm will result to resources on Refuge lands.



2.4.14.6 Subsistence Access

See Access for Subsistence Purposes under Subsistence Management (Section 2.4.13.1).

2.4.14.7 Transportation and Utility Systems

The Congress, through Title XI of ANILCA, determined that “Alaska’s transportation and utility network is largely undeveloped and future needs would best be addressed through a continuous decision making process...” To minimize impacts to conservation system units expanded or established by ANILCA, it was necessary to create a single and comprehensive authority for the approval or disapproval of applications for transportation or utility systems (TUS). Title XI provides a detailed definition for a TUS and establishes the procedural requirements, evaluation standards, and actions for a TUS. Chapter 43 CFR 36 provides the specific regulations and procedures for application review, compliance with NEPA, decisions, and appeals.

A TUS, as defined in ANILCA, includes roads, highways, railroads, airports, pipelines, electrical transmission lines, communication systems, and related structures and facilities reasonably and minimally necessary for the construction, operation, and maintenance of such systems. Anyone seeking to acquire a right-of-way over national wildlife refuge lands for a TUS must file an application with the Division of Realty and Natural Resources in the Service’s Alaska Regional Office.

The Service will make a decision whether to approve or disapprove a right-of-way for that portion of a TUS that would cross Refuge lands, except for those in designated Wilderness. When the proposed transportation or utility system would cross a designated Wilderness area, the Service tentatively approves or disapproves the application subject to the President’s subsequent decision. If the President approves, a recommendation is submitted to Congress for final approval.

A new right-of-way for a TUS across Refuge lands will be granted if the system is found to be compatible with Refuge purposes and meets the criteria outlined in Section 1104(g)(2) of ANILCA and the regulations at 43 CFR 36.7(a)(2), which includes a determination of whether there is any economically feasible and prudent alternative to routing the system through or in a refuge. If approved, permits issued for a TUS will contain terms and conditions as required under regulations at 43 CFR 36.9(b) and 50 CFR 29.21 through 29.24. Rights-of-way that cross any area inside the boundaries of a unit of the Wild and Scenic Rivers System will assure that the stream flow of, and transportation on, the designated river are not interfered with or impeded and that the facility is located and constructed in an environmentally sound manner (ANILCA Section 1107(b); 43 CFR 36.9(c) and (d)). Additional special requirements apply to rights-of-way for pipelines issued under the Mineral Leasing Act of 1920 (30 U.S.C. 185), Section 1107(c) of ANILCA, and regulations at 43 CFR 36.9(d).

When considering an application for a TUS, the authorization process will incorporate a corresponding amendment to a refuge’s comprehensive conservation plan to update the desired management category, or categories, of the affected area if the TUS were to be approved.

2.4.14.8 State Transportation Planning

Federal transportation planning regulations require each state to develop a long-range statewide transportation plan in consultation and coordination with other government agencies and the public. In Alaska, transportation projects nominated for funding are evaluated and ranked by the Alaska Department of Transportation and Public Facilities. When appropriate, the Refuge will participate in the State of Alaska transportation planning process and provide input regarding environmental considerations of proposed projects affecting Refuge lands and the resources therein.

2.4.14.9 RS 2477 Rights-of-Way

The State of Alaska identifies numerous claims to roads, trails, and paths across Federal lands under Revised Statute 2477 (RS 2477), a section in the Mining Act of 1866 that states, “The right-of-way for the construction of highways over public lands, not reserved for public uses, is hereby granted.” RS 2477 was repealed by the Federal Land Policy and Management Act of 1976, subject to valid existing claims.

Assertion and identification of potential rights-of-way does not establish the validity of these claims nor the public’s right to use them. The validity of all RS 2477 rights-of-way will be determined on a case-by-case basis, either through the courts or by other legally binding document. The State has identified, in Alaska Statute 19.30.400, six routes on Arctic Refuge it claims may be asserted as rights-of-way under RS 2477 (Appendix E).

2.4.14.10 17(b) Easements

Section 17(b) of ANCSA of 1971 authorizes the Secretary of the Interior to reserve easements on lands conveyed to Native corporations to guarantee access to public lands and waters. Easements across Native lands include linear easements (e.g., roads and trails) and site easements. Site easements are reserved for use as temporary campsites and to change modes of transportation.

The Service is responsible for administering those public easements inside and outside Refuge boundaries that provide access to Refuge lands. Service authority for administering 17(b) easements is restricted to the lands in the easement. The size, type, and route of 17(b) easements were initially identified on maps filed with conveyance documents. Current maps are available on the internet from the BLM. Conveyance documents also specify the terms and conditions of use, including the acceptable periods and methods of public access. See Appendix E for additional information.

2.4.14.11 Navigation Aids and Other Facilities

Section 1310 of ANILCA authorizes reasonable access to and operation and maintenance of existing air and water navigation aids, communications sites, and related facilities. It authorizes existing facilities for weather, climate, and fisheries research and monitoring subject to applicable laws and regulations. Reasonable access to and operation and maintenance of facilities for national defense and related air and water navigation are provided, including in designated Wilderness.

New facilities shall be authorized only after consultation with the head of the Federal department or agency undertaking the establishment, operation, or maintenance of such facilities and in accordance with terms and conditions to which all parties mutually agree.

2.4.15 Recreation and Other Public Use

Recreation will be managed to perpetuate experiences that are consistent with the Refuge Improvement and Refuge Recreation acts and the provisions described in Section 101 of the ANILCA. Public recreational activities in Alaska national wildlife refuges are allowed as long as such activities are conducted in a manner compatible with the purposes for which the areas were established (50 CFR 36.31). Compatible recreation activities and other visitor uses of Arctic Refuge will continue. Both consumptive (e.g., hunting, fishing, and trapping) and non-consumptive (e.g., wildlife observation and photography) recreation activities and other visitor uses are appropriate. The Refuge Improvement Act identifies compatible hunting, fishing, wildlife observation and photography, and environmental education and interpretation as priority public uses. These activities and uses are encouraged and will receive emphasis in public use management. Other general recreational activities that may not directly depend on wildlife are compatible, including camping, hiking, river floating, and mountaineering (Appendix G).

At Arctic Refuge, recreation will be managed in ways that are consistent with the Refuge's special values (Chapter 1, Section 1.5) and with consideration of public preferences. An Arctic Refuge visitor study and other sources indicate that opportunities to experience wildness, adventure, freedom, independence, self-reliance, solitude, and discovery are highly important to visitors. The Service will strive to maximize these opportunities in designated Wilderness and on Minimal Management lands while maintaining natural conditions and processes.

Consistent with resource protection, the Service will employ the least intrusive means of public use management. Minimum impact techniques, such as those promoted by the Leave No Trace Center for Outdoor Ethics, will be the standard for both public and agency activities. Outreach will be a primary tool for recreation management, using the Refuge's website, brochures, information kiosks, and personal contacts. Educational messages will emphasize the need for self-reliance, including adequate preparation. General information will be provided that enables visitors to access and enjoy the Refuge in a safe and environmentally sound manner that enhances their appreciation of the unique opportunities the Refuge affords. Commercial service providers will continue to play an important role in informing visitors and reporting conditions and trends relative to public use. Informational materials recommending trip routes, river crossings, best fishing areas, or other features will generally be avoided.

However, if voluntary methods fail, other actions may be taken, including limiting commercially-supported recreation; regulating use and access subject to the provisions of Section 1110(a) of ANILCA; and recommending changes in State and/or Federal fishing, hunting, or trapping regulations. When necessary, some recreation opportunities may be seasonally or otherwise restricted to minimize user conflicts and protect the ecological or other values of the Refuge. Any restrictions on public use will follow the public participation and closure procedures at 50 CFR 36, 43 CFR 36, or other applicable regulations. State management tools will also be used where mutually desirable.

A VUMP, a WSP, and other plans will be prepared, with opportunities for public involvement, to describe strategies and provide the specific provisions necessary to fulfill recreation goals and objectives.

There often are subtle differences between subsistence and recreational activities or uses. Subsistence activities or uses are addressed under Subsistence Use Management (Section 2.4.13). When it is necessary to restrict the taking of fish and wildlife on a refuge to protect the continued viability of such populations, the taking of fish and wildlife for non-wasteful

subsistence activities or uses shall be accorded priority over the taking of fish and wildlife for other purposes (i.e., recreational), in accordance with Title VIII of ANILCA.

2.4.16 Public Use Facilities

Facilities to support recreational and other public uses may be provided off Refuge lands at gateway communities, developed sites along the Dalton Highway, and administrative sites. Arctic Village, Coldfoot, Fairbanks, and Kaktovik are considered gateway communities for Arctic Refuge. All new facilities will comply with current accessibility standards, and access for the disabled will be considered in all facility upgrades.

Roads, boat launch sites, campgrounds, interpretive sites, kiosks, and permanent signs shall not be placed in Wilderness, Wild River, and Minimal Management areas of the Refuge (i.e., not allowed). Undeveloped landing areas, gravel bars, lakes, and rivers, and areas of ice and snow will continue to be the primary areas for aircraft access. Trails, temporary signs (e.g., during site restoration), hardened campsites, and sanitation facilities (at heavily used access sites) may be developed if necessary to prevent resource damage.

2.4.16.1 Cabins

Consistent with the Refuge's vision, goals, and objectives, public use cabins will not be allowed in Wilderness, Wild River, and Minimal Management areas of the Refuge. Special use permits are required for subsistence and commercial cabins, which are allowed in all management categories. Management of existing cabins and review of proposals for construction of new cabins for traditional uses will be in accordance with the Service's cabin regulations (50 CFR 36.33) and regional cabin policy (RW-1). Private recreational use cabins will not be authorized.

2.4.16.2 Temporary Facilities for the Taking of Fish and Wildlife

The Refuge will allow the use of temporary campsites, tent platforms, tent frames, shelters, and other temporary facilities and equipment directly and necessarily related to the taking of fish and wildlife, provided these facilities are not detrimental to Refuge purposes (ANILCA Section 1316). Regulations to implement commercial use of such temporary facilities are found in 50 CFR 35.6(e). Temporary facilities are subject to reasonable regulations to ensure that they are compatible with Refuge purposes. Tent platforms, tent frames, food caches, smokehouses, and other facilities may be allowed on a temporary basis for the taking of fish and wildlife in Wilderness, Wild River, and Minimal Management categories.

The Refuge may issue special use permits for the commercial use of tent platforms and accompanying frames and walls placed on Refuge lands for more than 12 months, while the use of tent platforms for non-commercial uses is subject to the promulgation of regulations. To ensure protection of resources on Refuge lands, the following special use permit stipulations will be included:

- Tent platforms will be located in a manner that does not displace or compete with existing public uses.
- They will be located away from the vicinity of existing cabins.
- They will be located on sites that are not currently popular campsites.
- They will be located to minimize displacement of wildlife.
- The time of human occupancy will coincide with the State and/or Federal hunting, fishing, and/or trapping season for the species for which the tent platform is being used.
- Tent platforms will be removed at the end of the occupancy period specified in the special use permit.
- To the extent feasible, tent platforms and related materials will be built and placed to blend in and be compatible with the immediately surrounding landscape.
- To the extent feasible, tent platforms and related materials will be screened from water and located so that they are as unobtrusive as possible.

2.4.17 Outreach and Education

Outreach is two-way communication between Arctic Refuge and the public to establish mutual understanding, promote public involvement, and influence public attitudes and behaviors. The Refuge will continue to use partnership opportunities to provide outreach, including working with the Alaska Geographic Association; Alaska Public Lands Information Centers; Friends of Alaska National Wildlife Refuges; local, State, and other Federal agencies; local schools; tribal governments; ANCSA Native corporations; Alaska Native organizations; and others.

Use of outreach as a management tool is a key to the success of many of the management activities outlined in this Plan. Two outreach activities—environmental education and interpretation—are included in the six priority public uses identified in the Refuge Improvement Act. Many other activities are also available for use by the Refuge staff in its outreach program, which may be developed in more detail as a step-down management plan. All outreach activities must be continually evaluated to determine whether they fulfill Refuge management goals and objectives. Arctic Refuge will ensure that outreach services are available to all segments of the public, including those with disabilities and those who speak languages other than English.

Refuge staff will develop informational displays, brochures, websites, minimum impact guidelines, and other outreach materials; visit local schools and communities; attend public meetings and workshops; invite the public to Arctic Refuge headquarters (i.e., open houses); work with the media; and foster outreach partnerships and one-on-one communication.

2.4.18 Commercial Use Management

Commercial activities or uses involve use of a refuge or its resources for a profit. Subsistence activities or uses are not included in commercial activities or uses. Refer to Section 2.4.13 for policies related to subsistence.

Except for mining on valid claims under the 1872 Mining Law, of which there are none located inside the boundaries of Arctic Refuge, other activities where specific property rights are held by groups or individuals other than the Federal government or where specifically exempted by law, the Refuge must comply with NEPA and the compatibility requirements of the Refuge Administration Act before authorizing commercial activities or uses. A written authorization (such as a special use permit) is required to conduct commercial activities on any refuge. Prior to authorizing any commercial or economic use of a natural resource, the Refuge manager must determine that each activity or use, except for proposed activities authorized by ANILCA, contributes to the achievement of Refuge purposes or the Refuge System mission (50 CFR 29.1). Except for commercial services described previously such as air operators and guided recreation, commercial enterprises are prohibited in designated Wilderness areas (Wilderness Act, Section 4(c)).

2.4.18.1 Commercial Recreation Services

Most visitors use the services of commercial air operators or motorboat transporters for access to Arctic Refuge. Wildlife-viewing guides, big-game hunting guides, fishing guides, wilderness guides, recreational guides, polar bear viewing guides, and others support many visitors. All businesses providing recreation services are required, under 50 CFR 27.97, to obtain special use permits to operate on Refuge lands. Where the number of special use permits is limited, Refuge managers will award permits competitively (50 CFR 36.41). Special use permits require compliance with all applicable laws and regulations (e.g., United States Coast Guard licensing regulations). Permit stipulations ensure that camps; travel methods; storage of food, fish, and game meat; and other activities are compatible with Refuge purposes and reduce the potential for impacts to resources and to other people using the Refuge. If problems or conflicts arise relating to commercial recreation activities or uses—such as disturbance of active nests, conflicts with subsistence activities or uses, chronic incidence of bears getting into food, or violations of State or Federal regulations—the Refuge may modify or terminate a specific activity or use under the special use permit stipulations. The Refuge will monitor the number and type of commercial service providers that operate on the Refuge and the number of clients and will, if necessary, further regulate these commercial recreation activities or uses.

Under Section 1307 of ANILCA, local preference is provided for all new commercial visitor services except guiding for hunting and fishing. Regulations defining local preference are at 50 CFR 36.37.

2.4.18.2 Mineral Exploration and Development

Mining – Section 304(c) of ANILCA withdrew all public lands on national wildlife refuges in Alaska from location, entry, and patent under the mining laws, subject to valid existing rights. There are no valid mining claims in Arctic Refuge, therefore exploration, location, entry or patent of Refuge lands under the mining laws of the United States is prohibited. The only exception is the limited exploration allowed as part of the Alaska Mineral Resource Assessment Program (Section 2.4.22 of this chapter).

Oil and Gas Studies – Oil and gas studies include surficial geology studies, subsurface core sampling, seismic surveys, and other geophysical activities. In the “1002” coastal plain area, Service regulations (50 CFR Part 37) presently do not provide for further oil and gas exploration—none of these studies are permitted until authorized by Congress. In Arctic Refuge designated Wilderness, seismic surveys, core sampling, and other studies that require mechanized surface transportation or motorized equipment will not be allowed except as provided for by Section 1010 of ANILCA (i.e., only if conducted by or for a DOI agency). In the wild river corridors, core drilling will not be permitted, except again as provided for under Section 1010. In the rest of the Refuge south of 68° North latitude, all of the oil and gas studies listed may be permitted pursuant to Section 1008(b) of ANILCA. In minimal management areas and proposed wilderness areas south of 68° North latitude, oil and gas studies may be permitted where site-specific stipulations can be designed to ensure compatibility with Refuge purposes and consistency with the management objectives set forth in this Plan.

Oil and Gas Leasing – Section 1003 of ANILCA prohibits production of oil and gas anywhere on Arctic Refuge. No leasing or other development leading to production of oil and gas from the original Arctic Wildlife Range shall be undertaken until authorized by an act of Congress. Thus, unless Congress takes action to change this provision, the Service will not permit oil and gas leasing under any of the alternatives in the Refuge Plan. Should Congress take action to allow oil and gas activities on Arctic Refuge, the Service would necessarily comply with NEPA and related agency policies.

Oil and Gas Support Facilities – The service manages the “1002” coastal plain area as a Minimal Management area, pending Congressional action. Oil and gas support facilities will not be permitted under this management category. Thus, until Congress takes action, the Service will not permit oil and gas support facilities in the Refuge in any of the alternatives in the Plan.

Sand, Gravel, and Other Common Variety (Saleable) Minerals – Common variety minerals—such as sand, gravel, and stone—may be sold pursuant to the Materials Act of July 31, 1947 (30 U.S.C. 601 and 602), as amended. Regulations are found at 43 CFR 3600. Disposal is also authorized under the Refuge Revenue Sharing Act (16 U.S.C. 715s). Also see 612 FW 1 of the Service Manual. Extraction may be authorized, where compatible, in Intensive and Moderate Management areas to support construction and maintenance projects on or near Refuge lands if no reasonable material sites exist off Refuge lands.

Other Mineral Leasing – In general, mineral leasing is not allowed on Refuge lands. Geothermal leasing is not allowed on refuges under Section 1014(c) of the Geothermal Steam Act (30 U.S.C. 1014). Coal mining is also prohibited, subject to valid existing rights, under Section 16 of the Federal Coal Leasing Amendment Act of 1975 (30 U.S.C. 201 Notes) and the Surface Mining Control and Reclamation Act of 1977 (30 U.S.C. 1272; 43 CFR 3400.2). In specific cases of national need, however, mineral exploration, development, or extraction may be permitted under Section 1502 of ANILCA. The President must determine that the national need for the

mineral activity outweighs the other public values of the land. Any recommendation by the President would take effect only after enactment of a joint resolution by Congress.

2.4.18.3 Commercial Fishing and Related Facilities

Section 304(d) of ANILCA, addresses commercial fishing and related campsites, cabins, motor vehicles, and aircraft on the Refuge. These facilities and uses in support of commercial fishing are subject to reasonable regulation. Section 304(d) provides for restricting commercial fishing rights if the use is determined to be inconsistent with Refuge purposes and to be a “significant expansion of commercial fishing activities...beyond the level of such activities during 1979.” As there were no commercial fishing activities or facilities on Arctic Refuge in 1979, any proposed facilities would be considered new. The Refuge will complete a compatibility determination for any commercial fishery and related facilities and equipment.

Aquaculture and mariculture (i.e., the cultivation of marine organisms in their native environment) support facilities may be allowed in Intensive Management areas, subject to provisions of State and Federal laws. No Intensive Management areas currently exist or are proposed on the Refuge. Seafood processing plants will not be allowed.

2.4.18.4 Commercial Harvest of Timber and Firewood

Commercial harvest of timber and firewood will only be authorized under a special use permit and when necessary to fulfill overall Refuge management objectives. In Minimal and Wild River Management categories, commercial harvest of timber and firewood to accomplish management objectives will only occur when an approved Refuge fire management plan has identified the need to reduce fuel loads in an area. Applicable Federal and State guidelines for timber management will be followed. Commercial harvest of timber and firewood is not allowed in designated Wilderness.

2.4.18.5 Commercial Gathering of Other Resources

Commercial gathering of other resources (e.g., antlers or mushrooms) requires a special use permit under 50 CFR 27.51 and may be authorized in Intensive and Moderate Management areas.



2.4.18.6 Commercial Filming and Recording Activities

Outside of designated Wilderness, it is Service policy to provide Refuge access and/or assistance to firms and individuals in the pursuit of commercial visual and audio recordings when they are compatible with Refuge purposes or the mission of the Refuge System. Commercial films, television production, or sound tracks made in refuges for other than news purposes require a special use permit or authorization (43 CFR 5.1). Commercial filming or recording activities such as videotaping, audio taping, and photography for the purpose of advertising products and services are subject to an A/V Production Permit (Refuge Manual 8 RM 16).

In designated Wilderness, we generally prohibit commercial filming unless we determine it is necessary to provide educational information about wilderness uses and values and does not degrade the Wilderness character of the area (610 FW 2.12). In cases where we allow such filming in designated Wilderness as a commercial service, permittees will be limited to access methods and equipment that are allowed for the general public including those uses allowed under Section 1110(a) of ANILCA, such as snowmachines, motorboats, airplanes, and nonmotorized surface transportation.

Permits are not required for still photography on Refuge lands open to the public, including commercial still photography, so long as no models or props which are not a part of the site's natural or cultural resources or administrative facilities are used (16 U.S.C. 460l-6d(c)).

2.4.18.7 Other Commercial Uses

Generally, other commercial activities or uses such as grazing, agriculture, and hydroelectric power development will not be allowed. An exception may be made for low-head or small run-of-the-river hydropower facilities. These may be authorized in Intensive and Moderate Management areas on a case-by-case basis. Section 2.4.14.7 provides details about transmission lines, pipelines, and other rights-of-way mentioned in Title XI of ANILCA.

2.4.19 *Environmental Contaminants Identification and Cleanup*

One goal of the Refuge Administration Act, as amended, is to maintain the biological integrity, diversity, and environmental health of the Refuge System. In support of this goal, the Service studies environmental contaminants that may threaten trust species (i.e., those species for which the Service has primary jurisdiction) and other resources of Arctic Refuge. This work will continue as new concerns are identified and as funding allows.

An assessment of known or suspected contaminant threats is normally completed for each refuge as part of the national Contaminants Assessment Process. During comprehensive conservation plan revisions, existing information will be reviewed, and an assessment of potential contaminant threats will be entered into an electronic database. A contaminant assessment report will also be prepared.

When contaminants are identified on Refuge lands, the Service will initiate discussions with the responsible party or parties to remedy the situation. If the Service caused the contamination, funds will be sought to define the extent and type of the contamination and to remedy it. Appropriate environmental regulations—including the Resource Conservation Recovery Act, Comprehensive Environmental Response and Compensation Liability Act, Oil Pollution Act of 1990, and State of Alaska regulations (e.g., 18 AAC 75)—will be followed during any remediation work that is conducted.

All spills of petroleum products and hazardous materials must be reported to the Alaska Department of Environmental Conservation and to the National Response Center. Incidents also will be reported to the Service's Regional Spill Response Coordinator. The Refuge will refer to the Service's Region 7 Spill Response Contingency Plan and other relevant plans when responding to spills.

2.4.20 *Management of Designated Wilderness*

Under the Wilderness Management category, designated Wilderness lands are primarily managed to preserve their Wilderness character (see Section 2.3.4). Management of designated Wilderness areas is directed by the specific purposes of a refuge, the mission of the Refuge System, the purposes and provisions of the Wilderness Act of 1964, the provisions of ANILCA, the Service's Wilderness Stewardship Policy (Service Manual 610 FW 1-5), and regional policy (Region 7 Policy Manual RW-29).

In accordance with national (610 FW 5.4) and regional policies (Region 7 Policy Manual RW-29), an MRA will be prepared for Refuge management activities proposed in designated Wilderness. This two-step decision process involves determining if a proposed management activity is necessary to accomplish the purposes of the Refuge, including Wilderness Act purposes, and if so, determining the minimum requirement, which is the least intrusive tool, equipment, device, force, regulation, or practice deemed the minimum necessary to achieve the management objective.

Certain activities are legislatively prohibited in designated Wilderness, including oil, gas, and other mineral leasing and most surface-disturbing activities. Section 4(c) of the Wilderness Act generally prohibits roads, commercial enterprises, motor vehicles, motorboats, other forms of mechanical transport, motorized equipment, the landing of aircraft, and structures and installations in designated Wilderness areas. Provisions of ANILCA, however, provide exceptions to some of these prohibitions for specific purposes, such as allowing motorized

public access for traditional activities and for the continuation of pre-existing commercial and private use cabins. Some of the ANILCA provisions affecting public use of designated Wilderness areas in Alaska include:

- Use of Federal lands for campsites, cabins, motorized vehicles, and aircraft landings directly incident to the exercise of valid commercial fishing rights (Section 304(d)).
- The use for subsistence purposes of snowmachines, motorboats, and other means of surface transportation traditionally employed for such purposes by local residents (Section 811).
- The use of snowmachines, motorboats, airplanes, and nonmotorized surface transportation methods for traditional activities and for travel to and from villages and home sites (Section 1110(a)).
- Such rights as necessary for access to State- or privately-owned lands (including subsurface rights), valid mining claims, or other valid occupancy (Section 1110(b)).
- Use of cabins for traditional and customary uses (Section 1303).
- Use of temporary campsites, tent platforms, shelters, and other temporary facilities, and equipment directly and necessarily related to the taking of fish and wildlife (Section 1316).
- Access for mineral assessment purposes, as part of the Alaska Mineral Resources Assessment Program (Section 1010).
- Construction and maintenance of navigation aids and other facilities for administrative purposes (Section 1310).
- Continuation of existing, and construction of new, public use cabins (Sections 1315(c) and (d)).

Under regional policy, the use of chainsaws by rural residents engaged in subsistence activities is allowed. However, motorized generators and water pumps are not allowed (Region 7 Policy Manual RW-4).

Granting rights-of-way for transportation or utility systems through designated Wilderness areas requires Presidential and congressional approval (Section 1106(b) of ANILCA; Sections 2.4.14.7 and 2.4.14.9 of this chapter).

The Refuge will develop a step-down WSP for its designated Wilderness area to address in greater detail its resources, public uses, and management (Chapter 2, Objective 2.4). Specific details will be included on how the broad management direction provided in this Revised Plan will be applied to preserve Wilderness character and values. This step-down plan will be prepared in cooperation with the State of Alaska and other partners. Public involvement will be an essential part of the preparation of this WSP.

2.4.21 Administration of Arctic National Wildlife Refuge

2.4.21.1 Administrative Sites and Visitor Facilities

Under Section 1306 of ANILCA, the Secretary of the Interior may establish administrative sites and visitor facilities, either inside or outside the boundaries of a conservation system unit, in accordance with the unit's management plan and for the purposes of ensuring the preservation, protection, and proper management of the unit. Section 1306(a)(2) further states, "to the extent practicable and desirable, the Secretary shall attempt to locate such sites and facilities on Native lands in the vicinity of the unit."

DOI guidelines, developed in 1995 and implementing Section 1306, require that prior to initiating a search for an administrative site or visitor facility, site-selection criteria be developed, with public input, and all proposals be evaluated according to the site-selection criteria. If it is determined that Native lands satisfy the site-selection criteria and are desirable and practicable for the intended administrative site or visitor facility, the highest-ranked Native lands shall be selected as the preferred site, subject to a specific site evaluation. If no Native lands satisfy the site-selection criteria, the highest-ranked parcel will become the preferred site. Public comments will be considered prior to making a final decision.

Administrative sites include temporary and permanent field camps, residences, offices, administrative cabins, and associated storage, communication, and transportation facilities. The type of administrative site and level of development will be consistent with the management intent of the management category in which it is constructed. Administrative field camps or other administrative facilities in Minimal, Wild River, and Wilderness Management categories may only be allowed when required to meet management objectives, when no reasonable alternative sites exist, and when the facilities are essential to protect the health and safety of employees. New facilities would be the minimum required to meet long-term needs.

Fuel storage or other hazardous material storage in conjunction with administrative sites will meet all Federal and State requirements for spill containment and storage. Hazardous materials stored in the Wild River and Wilderness Management categories will be in small (55-gallon or less) containers.

Administrative facilities that currently exist on Refuge lands include three administrative cabins and an outhouse on the north slope of the Brooks Range at Lake Peters, and two administrative cabins and an outhouse on the south slope of the Brooks Range at Big Ram Lake.

2.4.21.2 Applicability of Refuge Regulations to Off-Refuge Administrative and Visitor Facility Sites

Under 50 CFR 36.1(c), the Service is authorized to enforce regulations concerning public safety and protection of government property, and State fish and wildlife regulations, on administrative and visitor facility sites that may be held in fee or less-than-fee title and are either inside or outside the approved boundaries of Arctic Refuge.

Off-Refuge facilities include a Refuge office and maintenance annex at the Federal Building in Fairbanks, a Service aircraft hangar at the Fairbanks International Airport, a cooperatively managed Alaska Public Lands function at the Morris Thompson Visitor Center in Fairbanks, a jointly operated Arctic Interagency Visitor Center in Coldfoot on the Dalton Highway, a jointly managed Refuge and community managed Visitor Center in Arctic Village, an

administrative building and related facilities at Galbraith Lake, and information kiosks located in Kaktovik, Arctic Village, and at Happy Valley on the Dalton Highway.

The Refuge owns a 16-bed bunkhouse/garage and equipment storage shed located on private lands leased from the City of Kaktovik.

2.4.21.3 Refuge Management Plans

Some management programs are addressed in sufficient detail in the comprehensive conservation plan to be integrated directly into the budgetary process. For other programs, it may be necessary to prepare step-down management plans to implement general strategies identified in this Plan. Information on the step-down planning process can be found in 602 FW 3 of the Service Manual.

A list of Refuge step-down management plans is found in Chapter 6 of this Plan.

2.4.22 Alaska Mineral Resource Assessment Program

Section 1010 of ANILCA requires that all Federal lands be assessed for their oil, gas, and other mineral potential. Mineral assessment techniques that do not have lasting impacts—such as side-scanning radar, trenching, and core drilling—may be allowed throughout the Refuge. Special use permits issued to other government agencies or their contractors for assessment work will include stipulations to ensure that the assessment program is compatible with Refuge purposes. For example, stipulations may limit access during nesting, calving, spawning, or other times when fish and wildlife may be especially vulnerable to disturbance.

2.5 Management Categories Table

2.5.1 Introduction

Table 2-1 summarizes activities, public uses, commercial activities or uses, and facilities by management category. In some cases, it provides very specific guidance, such as for highway vehicles. In other cases, such as for research and management facilities, the direction is general. While facilities may be allowed in all management categories, the types of facilities and how they would be constructed and operated vary by management category. The descriptions of the management categories reflect a clear distinction in the level of action and constraints that may be placed on activities or developments in the management categories. The descriptions of the management categories reflect the desired future condition of the area and shall be used to evaluate site-specific proposals. Activities allowed or authorized in the different categories will be managed differently, depending on the management category in which they occur.

Management categories, activities, public uses, commercial activities or uses, and facilities that generally do not apply to Arctic Refuge are shaded in gray.

2.5.2 Definitions for Management Categories Table

The following are definitions for terms used in Table 2-1.

Allowed: Activity, use, or facility is allowed under existing NEPA analysis, appropriate use findings, Refuge compatibility determinations, and applicable laws and regulations of the Service, other Federal agencies, and the State.

May be allowed: Activity, use, or facility may be allowed subject to site-specific NEPA analysis, an appropriate use finding (when required), a specific Refuge compatibility determination (when required), and compliance with all applicable laws and regulations of the Service, other Federal agencies, and the State.

May be authorized: Activity, use, or facility may only be allowed with a required special use permit or other authorization.

Not allowed: Activity, use, or facility is not allowed.

The following terms are used in the table and throughout this chapter.

NEPA analysis: All activities, uses, and facilities proposed for a refuge that have the potential to affect the environment require an analysis of potential environmental impacts under the National Environmental Policy Act. This analysis may be documented as a categorical exclusion, an environmental assessment (EA), or an environmental impact statement (EIS), depending on the nature of the proposed project.

Appropriate Use: All activities, uses, and facilities over which the Service has jurisdiction must be determined to be appropriate following direction in Service Manual 630 FW 1. Hunting, fishing, wildlife observation and photography, and environmental education and interpretation are considered appropriate by national policy with no further analysis required. See Section 2.4.1 for a description of the criteria used to determine if other activities, uses, or facilities are appropriate.

Compatibility: All activities, uses, and facilities allowed on the Refuge, except management actions undertaken by the Service, must be found to be compatible with the purposes of the Refuge and the mission of the Refuge System. Management activities undertaken by volunteers, cooperators, or contractors working for the Service, with limited exception, are exempt from compatibility review (part 603 of the Service Manual).

Regulations: All activities, uses, and facilities allowed on a refuge must comply with any applicable regulations, as published in the CFR. Regulations are developed by the Service through a public process to implement the legal authorities under which the Service manages the Refuge System. For more information on these regulations, see the Management Policies and Guidelines section of this chapter. For some activities, other Federal agency and/or State regulations may also apply.

Temporary: The term “temporary” means a continuous period of time not to exceed 12 months, except as specifically provided otherwise. Special use permits or other authorizations may prescribe a longer period of time, but the structures or other human-made improvements need to be readily and completely dismantled and removed from the site when the period of authorized use terminates.

The following guidelines apply to all activities, uses, and facilities on a refuge.

Area or time restrictions: All activities, uses, and facilities allowed on a refuge may be restricted in certain areas or at certain times, at the discretion of the refuge manager and with the appropriate level of public involvement, by emergency (short-term) or permanent regulation, if necessary to protect resources on refuge lands or human health and safety.

Human safety and management emergencies: Actions not allowed on a refuge or in specific management categories may be allowed in situations or events that threaten human health or safety, or that make the action necessary to meet legal mandates.

Table 2-1. Activities, public uses, commercial activities, or uses, and facilities by management category.

Note: Those management categories and activities that do not apply to Arctic Refuge are shaded gray.

ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
ECOSYSTEM, HABITAT, FISH, AND WILDLIFE MANAGEMENT (See Sections 2.4.10, 2.4.11, and 2.4.12)					
Ecosystem and Landscape Management					
Collecting Information on and Monitoring Ecosystem Components Data gathering, monitoring, and maintaining a comprehensive database of selected ecosystem components (e.g., plants, animals, fish, water, air). (See Sections 2.4.12 and 2.4.12.1)	Allowed*; see Section 2.4.20	Allowed	Allowed	Allowed	Allowed
Research and Management Access and collection of data necessary for management decisions or to further science by the Service. (See Section 2.4.12)	Allowed*; see Section 2.4.20	Allowed	Allowed	Allowed	Allowed
Access and collection of data necessary for management decisions or to further science by ADFG.	Allowed*; see Section 2.4.20	Allowed	Allowed	Allowed	Allowed
Access and collection of data necessary for management decisions or to further science by other researchers.	May be authorized*; see Section 2.4.20	May be authorized	May be authorized	May be authorized	May be authorized
Research and Management Facilities May be permanent or temporary structures or camps, including weirs, counting towers, and sonar counters. (See Section 2.4.21.1)	May be allowed*; consistent with Section 2.3.4 and 2.4.21.1	May be allowed	May be allowed	May be allowed	May be allowed

* Subject to minimum requirement analysis

ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
Fish and Wildlife Habitat Management					
Describing, Locating, and Mapping Habitats Development of quantitative, written, and graphic descriptions of fish and wildlife habitat, including water, food, and shelter components. (See Section 2.4.11.1)	Allowed*; see Section 2.4.20	Allowed	Allowed	Allowed	Allowed
Habitat Management (See Section 2.4.11.1) <i>Mechanical Treatment:</i> Activities such as cutting, crushing, or mowing of vegetation; water control structures; fencing; artificial nest structures.	Not allowed; with exceptions consistent with Sections 2.3.4. See also Section 2.4.20	Not allowed; with exceptions consistent with Section 2.3.5	Not allowed; with exceptions consistent with Section 2.3.3	May be allowed	May be allowed
<i>Chemical Treatment:</i> Use of chemicals to remove or control non-native species. (See Section 2.4.12.8)	May be allowed*; see Section 2.4.20	May be allowed	May be allowed	May be allowed	May be allowed
<i>Manual Treatment:</i> Use of hand tools to remove, reduce, or modify hazardous plant fuels or exotic plant species, or to modify habitats (e.g., remove beaver dams).	May be allowed*; see Section 2.4.20	May be allowed	May be allowed	May be allowed	May be allowed
Aquatic Habitat Modifications Activities such as stream bank restoration, passage structures, fish barriers, or removal of obstacles that result in physical modification of aquatic habitats to maintain or restore native fish species. (See Section 2.4.11.1)	May be allowed*; consistent with Section 2.3.4. See also Section 2.4.20	May be allowed; consistent with Section 2.3.5	May be allowed	May be allowed	May be allowed

* Subject to minimum requirement analysis

ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
Fire Management—Prescribed Fires Planned ignitions designed to meet specific management objectives. (See Section 2.4.11.2)	May be allowed*; see Section 2.3.4	May be allowed	May be allowed	May be allowed	May be allowed
Fire Management—Use of Wildland Fire Management of wildfires to meet resource objectives. Wildfires or portions of wildfires may remain unsuppressed to protect and maintain the ecological integrity of Refuge lands. (See Section 2.4.11.2)	May be allowed*	May be allowed	May be allowed	May be allowed	May be allowed
Fire Management—Fire Suppression Management actions intended to extinguish or confine a fire or a portion of a fire, beginning with its discovery, to protect, prevent, or reduce the loss of identified values. (See Section 2.4.11.2)	Allowed	Allowed	Allowed	Allowed	Allowed
Non-native and Pest Plant Control Monitoring, extirpation, control, removal and/or relocation, and other management practices for pest and non-native plant species. (See Section 2.4.12.8)	May be allowed*; see Section 2.4.20	May be allowed	May be allowed	May be allowed	May be allowed
Water Quality and Quantity Management Monitoring of water quality and quantity to identify baseline data and for management purposes; includes installation of gauging stations. (See Section 2.4.10.3)	Allowed*; see Section 2.4.20	Allowed	Allowed	Allowed	Allowed

* Subject to minimum requirement analysis

ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
Fish and Wildlife Population Management					
Reintroduction of Species The reintroduction of native species to restore diversity of native fish, wildlife, and habitats. (See Section 2.4.12.6)	May be allowed*; see Section 2.4.20	May be allowed	May be allowed	May be allowed	May be allowed
Fish and Wildlife Control The control, relocation, sterilization, removal, or other management of native species, including predators, to maintain diversity of native fish, wildlife, and habitats; favor other fish or wildlife populations; protect reintroduced, threatened, or endangered species or to restore depleted native populations. (See Section 2.4.12.7)	May be allowed*; see Section 2.4.20	May be allowed	May be allowed	May be allowed	May be allowed
Non-native Species Management The removal or control of non-native species (including predators). (See Section 2.4.12.8)	May be allowed*; see Section 2.4.20	May be allowed	May be allowed	May be allowed	May be allowed
Pest Management and Disease Prevention and Control Relocation or removal of organisms that threaten human health or survival of native fish, wildlife, or plant species. Management practices directed at controlling pathogens that threaten fish, wildlife, and people, such as rabies and parasite control. (See Section 2.4.12.9)	May be allowed*; see Section 2.4.20	May be allowed	May be allowed	May be allowed	May be allowed

* Subject to minimum requirement analysis

ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
Fishery Restoration Actions taken to restore fish access to spawning and rearing habitat, or actions taken to restore populations to historic levels. Includes harvest management, escapement goals, habitat restoration, stocking, egg incubation boxes, and lake fertilization. (See Section 2.4.12.10)	May be allowed*	May be allowed	May be allowed	May be allowed	May be allowed
Fishery Restoration Facilities Fisheries facilities may be permanent or temporary and may include hatcheries, fish ladders, fish passages, fish barriers, and associated structures. (See Sections 2.4.12.1 and 2.4.21.1)	May be authorized*	May be authorized	May be authorized	May be authorized	May be authorized
Fishery Enhancement Activities applied to a fish stock to supplement numbers of harvestable fish to a level beyond what could be naturally produced based upon a determination or reasonable estimate of historic levels. (See Section 2.4.12.10)	Not allowed	Not allowed	Not allowed	May be authorized	May be authorized
Fishery Enhancement Facilities May be permanent or temporary and may include hatcheries, egg incubation boxes, fish ladders, fish passages, fish barriers, and associated structures. (See Sections 2.4.12.10 and 2.4.21.1)	Not allowed	Not allowed	Not allowed	May be authorized	May be authorized
Non-native Species Introductions Introduction of species not naturally occurring in the Refuge. (See Section 2.4.12.6)	Not allowed	Not allowed	Not allowed	Not allowed	Not allowed

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ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
SUBSISTENCE (See Section 2.4.13) Subsistence Activities					
Fishing, Hunting, Trapping, and Berry Picking The taking of fish and wildlife and other natural resources for personal consumption, as provided by law.	Allowed	Allowed	Allowed	Allowed	Allowed
Collection of House Logs and Firewood Harvesting live standing timber greater than 6 inches diameter at breast height for personal or extended family use.	May be authorized	May be authorized	May be authorized	May be authorized	May be authorized
Collection of House Logs and Firewood Harvesting live standing timber between 3 and 6 inches diameter at breast height for personal or extended family use.	20 trees or fewer per year allowed; more than 20 trees per year may be authorized; consistent with Section 2.4.13	20 trees or fewer per year allowed; more than 20 trees per year may be authorized; consistent with Section 2.4.13	20 trees or fewer per year allowed; more than 20 trees per year may be authorized; consistent with Section 2.4.13	20 trees or fewer per year allowed; more than 20 trees per year may be authorized; consistent with Section 2.4.13	20 trees or fewer per year allowed; more than 20 trees per year may be authorized; consistent with Section 2.4.13
Collection of Plant Materials Harvesting trees less than 3 inches diameter at breast height, dead standing or downed timber, grass, bark, and other plant materials used for subsistence purposes.	Allowed	Allowed	Allowed	Allowed	Allowed
Temporary Facilities – See Temporary Facilities (Public Use) (See also Section 2.4.16.2)					
Subsistence Cabins – See Cabins (Public Use) (See also Section 2.4.16.1)					

ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
Subsistence Access – subject to reasonable regulations under provisions of Section 811 of ANILCA (See Section 2.4.13.1)					
Use of snowmobiles, motorboats, and other means of surface transportation traditionally employed for subsistence purposes.	Allowed	Allowed	Allowed	Allowed	Allowed
PUBLIC ACCESS (See Sections 2.4.12.8, 2.4.12.9, 2.4.13.1 and 2.4.14)					
Restrictions subject to provisions of Section 1110 of ANILCA as applicable; see also Subsistence Access section in this table.					
Foot	Allowed	Allowed	Allowed	Allowed	Allowed
Dogs and Dog Teams (Straw and hay bedding not allowed)	Allowed	Allowed	Allowed	Allowed	Allowed
Domestic Sheep, Goats, and Camelids (e.g., llamas and alpacas)	Not allowed**	Not allowed**	Not allowed**	Not allowed**	Not allowed**
Other Domestic Animals Includes horses (pelletized weed-free feed required)	Allowed	Allowed	Allowed	Allowed	Allowed
Non-Motorized Boats Includes canoes, kayaks, rafts, etc.	Allowed	Allowed	Allowed	Allowed	Allowed
Motorized					
Use of snowmobiles, motorboats, airplanes, and non-motorized surface transportation methods for traditional activities and for travel to and from villages and home sites.	Allowed	Allowed	Allowed	Allowed	Allowed
Highway Vehicles	Not allowed	Not allowed	Not allowed	May be allowed on designated roads	Allowed on all-weather roads

** Requires new regulations for non-commercial uses.

ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
Off-Road Vehicles (All-Terrain Vehicles) Includes air boats and air-cushion vehicles. (See Sections 2.4.13.1 and 2.4.14.2)	Not allowed; with exceptions consistent with Section 2.4.13.1	Not allowed; with exceptions consistent with Section 2.4.13.1	Not allowed; with exceptions consistent with Section 2.4.13.1	May be authorized	May be authorized
Helicopters Includes all rotary-wing aircraft. (See Section 2.4.14.3)	Not allowed; with exceptions consistent with Section 2.4.14.3	Not allowed; with exceptions consistent with Section 2.4.14.3	Not allowed; with exceptions consistent with Section 2.4.14.3	May be authorized	May be authorized
PUBLIC USE, RECREATION, and OUTREACH ACTIVITIES Also see ACCESS and Commercial Recreation sections.					
Hunting, Fishing, Wildlife Observation, Wildlife Photography, Interpretation, and Environmental Education Note: All activities listed are priority public uses. (See Sections 2.4 and 2.4.15)	Allowed	Allowed	Allowed	Allowed	Allowed
Trapping, Walking, Hiking, Camping at Undeveloped Sites, and Dog Sledding (See Sections 2.4 and 2.4.15)	Allowed	Allowed	Allowed	Allowed	Allowed
General Photography See also COMMERCIAL USES. (See Sections 2.3 and 2.4.15)	Allowed	Allowed	Allowed	Allowed	Allowed
Outreach Activities (See Sections 2.3 and 2.4.17)	Allowed	Allowed	Allowed	Allowed	Allowed
Public Use and Recreation Facilities – level of development is consistent with management intent of the category (See Section 2.4.16)					
All Weather Roads And associated developments, including bridges.	Not allowed	Not allowed	Not allowed	May be allowed	May be allowed

ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
Unimproved Roads Note: While unimproved roads are not allowed in Minimal, Wilderness, and Wild River Management categories, roads may exist. In these management categories, the roads will not be designated for use or maintained.	Not allowed	Not allowed	Not allowed	May be allowed	May be allowed
Designated Off-Road Vehicle (All-Terrain Vehicle) Routes and Areas	Not allowed	Not allowed	Not allowed	May be authorized	May be authorized
Roadside Exhibits and Waysides	Not applicable	Not applicable	Not applicable	May be allowed	May be allowed
Constructed and Maintained Landing Areas	Not allowed	Not allowed	Not allowed	May be allowed	May be allowed
Cleared Landing Areas Includes unimproved areas where airplanes land. Minor brush cutting or rock removal by hand is allowed for maintenance.	Existing areas allowed to remain*; new areas not allowed; see Section 2.4.20	May be allowed	May be allowed	May be allowed	May be allowed
Constructed Hiking Trails Includes bridges, boardwalks, trailheads, and related facilities. (See Section 2.4.16)	May be allowed*	May be allowed	May be allowed	May be allowed	May be allowed
Designated Hiking Routes Unimproved and unmaintained trails; may be designated by signs, cairns, and/or on maps.	Allowed	Allowed	Allowed	Allowed	Allowed
Boat Launches and Docks (Public) Designated sites for launching and storing watercraft or tying up a float plane. (See Section 2.4.16)	Not allowed*	Not allowed	Not allowed	May be allowed	May be allowed

* Subject to minimum requirement analysis

ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
Visitor Contact Facilities A variety of staffed and unstaffed facilities providing information on the Refuge and its resources to the public; facilities range from visitor centers to kiosks and signs. (See Section 2.4.16)	Not allowed*; see Sections 2.3.4 and 2.4.20	Not allowed	Not allowed	May be allowed	May be allowed
Campgrounds Developed sites accessible by highway vehicles.	Not applicable	Not applicable	Not applicable	May be allowed	May be allowed
Hardened Campsites Areas where people can camp that are accessible by vehicle or on foot but where the only facilities provided are for public health and safety and/or resource protection; may include gravel pads for tents, hardened trails, and/or primitive toilets. (See Section 2.4.16)	May be allowed*; consistent with Section 2.4.20	May be allowed	May be allowed	Allowed	Allowed
Temporary Facilities Includes tent frames and platforms, caches, and other similar or related facilities used for taking fish and wildlife; does not include cabins. See also COMMERCIAL USES and Administrative Facilities. (See Section 2.4.16.2)	Tent platforms left in place more than 12 months may be authorized; all others may be allowed	Tent platforms left in place more than 12 months may be authorized; all others may be allowed	Tent platforms left in place more than 12 months may be authorized; all others may be allowed	May be allowed	May be allowed

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ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
Cabins – also other related structures such as outdoor toilets, food caches, storage sheds, and fish drying racks (See Section 2.4.16.1)					
Public Use Cabin A cabin administered by the Service and available for use by the public; intended only for short-term public recreational use and occupancy.	Not allowed	Not allowed	Not allowed	May be allowed	May be allowed
Administrative Cabin Any cabin primarily used by Refuge staff or other authorized personnel for the administration of the Refuge. (See Section 2.4.21.1)	May be allowed*; consistent with Section 2.4.20	May be allowed	May be allowed	May be allowed	May be allowed
Subsistence Cabin Any cabin necessary for health and safety and to provide for the continuation of ongoing subsistence activities; not for recreational use.	Existing cabins allowed to remain; new cabins may be authorized; consistent with Section 2.4.20	Existing cabins allowed to remain; new cabins may be authorized	Existing cabins allowed to remain; new cabins may be authorized	Existing cabins allowed to remain; new cabins may be authorized	Existing cabins allowed to remain; new cabins may be authorized
Commercial Cabin Any cabin that is used in association with a commercial operation, including but not limited to commercial fishing activities and recreational guiding services.	Existing cabins allowed to remain; new cabins not allowed consistent with Section 2.4.20	Existing cabins allowed to remain; new cabins may be authorized	Existing cabins allowed to remain; new cabins may be authorized	Existing cabins allowed to remain; new cabins may be authorized	Existing cabins allowed to remain; new cabins may be authorized
Other Cabins Cabins associated with authorized activities or uses by other government agencies.	May be authorized; consistent with Section 2.4.20	May be authorized	May be authorized	May be authorized	May be authorized

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ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
Administrative Facilities (See Section 2.4.21.1)					
Administrative Field Camps Temporary facilities used by Refuge staff and other authorized personnel to support individual (generally) field projects; may include but not limited to tent frames and temporary/portable outhouses, shower facilities, storage/ maintenance facilities, and caches.	May be allowed*	May be allowed	May be allowed	May be allowed	May be allowed
Administrative Field Sites Permanent facilities used by Refuge staff or other authorized personnel for the administration of the Refuge. Includes administrative cabins and related structures (see Cabins) and larger multi-facility administrative sites necessary to support ongoing field projects, research, and other management activities. Temporary facilities, to meet short-term needs, may supplement the permanent facilities at these sites.	Use of existing sites allowed, including replacement of existing facilities as necessary; new sites may be allowed*; consistent with Sections 2.3.4 and 2.4.20	Use of existing sites allowed, including replacement of existing facilities as necessary; new sites may be allowed	Use of existing sites allowed, including replacement of existing facilities as necessary; new sites may be allowed	Use of existing sites allowed, including replacement of existing facilities as necessary; new sites may be allowed	Use of existing sites allowed, including replacement of existing facilities as necessary; new sites may be allowed
Refuge Administrative Office Complex Facilities necessary to house Refuge operations, outreach, and maintenance activities, and associated infrastructure; includes staff offices, storage, maintenance, parking lots, and other similar facilities.	Not allowed	Not allowed	Not allowed	Not allowed	May be allowed

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ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
Hazardous Materials Storage Sites, including appropriate structures and equipment, necessary for the storage and transfer of fuels and other hazardous materials necessary for administrative purposes; must be in compliance with all Federal and State requirements.	May be allowed*	May be allowed	May be allowed	May be allowed	May be allowed
Residences Residential housing for Refuge staff and their families; includes single and multi-family dwellings.	Not allowed	Not allowed	Not allowed	Not allowed	May be allowed
Bunkhouses Quarters to house temporary and similar employees, volunteers, visitors, and other agency personnel.	Not allowed	Not allowed	Not allowed	Not allowed	May be allowed
Aircraft Hangars and Facilities for Storage of Aircraft	Not allowed	Not allowed	Not allowed	Not allowed	May be allowed
Boat Launches and Docks (Administrative) Designated sites for launching and storing watercraft or tying up a float plane.	May be allowed*	May be allowed	May be allowed	May be allowed	May be allowed
Radio Repeater Sites Sites used to maintain radio communications equipment; may include a location for helicopter access.	May be allowed*	May be allowed	May be allowed	May be allowed	May be allowed

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ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
COMMERCIAL ACTIVITIES OR USES					
Except as noted, a special use permit or other authorization is required for economic use of a refuge.					
Commercial Recreation – includes all forms of guiding, including those operated by nonprofit, educational, and other non-commercial groups (See Section 2.4.18.1)					
Guiding	May be authorized	May be authorized	May be authorized	May be authorized	May be authorized
Transporting	May be authorized	May be authorized	May be authorized	May be authorized	May be authorized
Fixed-Wing Air-Taxis	May be authorized	May be authorized	May be authorized	May be authorized	May be authorized
Helicopter Air-Taxis	Not allowed	Not allowed	Not allowed	Not allowed	Not allowed
Bus and Auto Tours	Not applicable	Not applicable	Not applicable	May be authorized	May be authorized
Mineral Exploration (See Section 2.4.18.2)					
See Section 2.4.22 for information on the Alaska Mineral Resource Assessment Program.					
Surface Geological Studies Includes surface rock collecting and geological mapping activities (includes helicopter or fixed-wing access).	May be authorized consistent with Section 2.4.18.2	May be authorized consistent with Section 2.4.18.2	May be authorized consistent with Section 2.4.18.2	May be authorized consistent with Section 2.4.18.2	May be authorized consistent with Section 2.4.18.2
Geophysical Exploration and Seismic Studies Examination of subsurface rock formations through devices that set off and record vibrations in the earth. Usually involves mechanized surface transportation but may be helicopter supported; includes studies conducted for DOI.	Not allowed	May be authorized consistent with Section 2.4.18.2	May be authorized consistent with Section 2.4.18.2	May be authorized consistent with Section 2.4.18.2	May be authorized consistent with Section 2.4.18.2
Core Sampling Using helicopter transported motorized drill rig to extract subsurface rock samples; does not include exploratory wells; includes sampling conducted for DOI.	Not allowed with exceptions consistent with Sec. 2.4.22	Not allowed with exceptions consistent with Sec. 2.4.22	May be authorized consistent with Section 2.4.18.2	May be authorized consistent with Section 2.4.18.2	May be authorized consistent with Section 2.4.18.2

ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
Other Geophysical Studies Helicopter-supported gravity and magnetic surveys and other minimal impact activities that do not require mechanized surface transportation.	Not allowed	May be authorized consistent with Section 2.4.18.2	May be authorized consistent with Section 2.4.18.2	May be authorized consistent with Section 2.4.18.2	May be authorized consistent with Section 2.4.18.2
Mineral Development (see Section 2.4.18.2)					
Oil and Gas Leasing Leasing, drilling, and extraction of oil and gas for commercial purposes. Includes all associated above and below ground facilities.	Not allowed unless authorized by Congress under ANILCA 1003	Not allowed unless authorized by Congress under ANILCA 1003	Not allowed unless authorized by Congress under ANILCA 1003	Not allowed unless authorized by Congress under ANILCA 1003	Not allowed unless authorized by Congress under ANILCA 1003
Sale of Sand, Gravel, and Other Common Variety Minerals Extraction of sand, gravel, and other saleable minerals for commercial purposes; includes commercial use by Federal, State, and local agencies.	Not allowed	Not allowed	Not allowed	May be authorized	May be authorized
Other Mineral Leasing Includes the extraction of coal, geothermal resources, potassium, sodium, phosphate, sulfur, or other leasable minerals for commercial purposes. For cases of national need, see Section 2.4.18.2.	Not allowed	Not allowed	Not allowed	Not allowed	Not allowed
Mining of Hardrock Minerals Development of valid (pre-ANILCA) mining claims (lode, placer, and mill sites) on Refuge lands for the purpose of extracting hardrock minerals. There are no valid claims on the Refuge.	Not allowed	Not allowed	Not allowed	Not allowed	Not allowed

ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
Other Commercial Activities					
Commercial Filming, Videotaping, and Audio Taping (See Section 2.4.18.6)	May be authorized	May be authorized	May be authorized	May be authorized	May be authorized
Grazing (See Section 2.4.18.7)	Not allowed	Not allowed	Not allowed	Not allowed	Not allowed
Agriculture (Commercial) (See Section 2.4.18.7)	Not allowed	Not allowed	Not allowed	Not allowed	Not allowed
Commercial Fishery Support Facilities At or below 1979 levels. (See Section 2.4.18.3)	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Commercial Fishery Support Facilities Above 1979 levels. (See Section 2.4.18.3)	Not allowed	May be authorized	May be authorized	May be authorized	May be authorized
Seafood Processing (See Section 2.4.18.3)	Not allowed	Not allowed	Not allowed	Not allowed	Not allowed
Aquaculture and Mariculture Support Facilities (See Section 2.4.18.3)	Not allowed	Not allowed	Not allowed	Not allowed	May be authorized
Commercial Timber and Firewood Harvest (See Section 2.4.18.4)	Not allowed	May be authorized	May be authorized	May be authorized	May be authorized
Commercial Gathering of Other Resources (See Section 2.4.18.5)	Not allowed	Not allowed	Not allowed	May be authorized	May be authorized
Transportation and Utility Systems Includes transmission lines, pipelines, telephone and electrical power lines, oil and gas pipelines, communication systems, roads, landing areas, and other necessary related facilities. Does not include facilities associated with on-Refuge oil and gas development. (See Section 2.4.14.7)	May be authorized by Congress	May be authorized	May be authorized	May be authorized	May be authorized

ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
Navigation Aids and Other Facilities Includes air and water navigation aids and related facilities, communication sites and related facilities, facilities for national defense purposes and related air/water navigation aids, and facilities for weather, climate, and fisheries research and monitoring; includes both private and government facilities. (See Section 2.4.14.11)	May be authorized*	May be authorized	May be authorized	May be authorized	May be authorized
Major Hydroelectric Power Development Hydroelectric dams creating a change in stream flow with an elevation change and reservoir behind the dam. (See Section 2.4.18.7)	Not allowed	Not allowed	Not allowed	Not allowed	Not allowed
Small Hydroelectric Power Development Hydroelectric generation by low-head or instream structures that do not change the flow of the river. (See Section 2.4.18.7)	Not allowed	Not allowed	Not Allowed	May be authorized	May be authorized

* Subject to minimum requirement analysis

